

Lösungen

1

a

```
Remove["Global`*"];
```

i

```
F[x_,y_]:= x^2 y^3 +x -2 y; F[x,y]//TeXForm
```

```
x^2 y^3-2 y+x
```

```
Dt[F[x, y]] (* Totales Differential *)
```

```
Dt[x] + 2 x y^3 Dt[x] - 2 Dt[y] + 3 x^2 y^2 Dt[y]
```

```
Collect[%,{ Dt[x], Dt[y]}]
```

```
(1 + 2 x y^3) Dt[x] + (-2 + 3 x^2 y^2) Dt[y]
```

```
f[x_,y_]:= Evaluate[D[F[u,y],u]/.u->x]; f[x,y]
```

```
1 + 2 x y^3
```

```
g[x_,y_]:= Evaluate[D[F[x,u],u]/.u->y]; g[x,y]
```

```
-2 + 3 x^2 y^2
```

```
D[f[x,y],y]==D[g[x,y],x]
```

```
True
```

ii

Solve[F[x,y[x,c]]==c,{y[x,c]}

$$\left\{ \left\{ y[x, c] \rightarrow \frac{2 \cdot 2^{1/3}}{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}} + \frac{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}}{3 \cdot 2^{1/3} x^2} \right\}, \right.$$

$$\left. \left\{ y[x, c] \rightarrow -\frac{2^{1/3} (1 + i \sqrt{3})}{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}} - \frac{(1 - i \sqrt{3}) \left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}}{6 \cdot 2^{1/3} x^2} \right\}, \right.$$

$$\left. \left\{ y[x, c] \rightarrow -\frac{2^{1/3} (1 - i \sqrt{3})}{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}} - \frac{(1 + i \sqrt{3}) \left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}}{6 \cdot 2^{1/3} x^2} \right\} \right\}$$

solv0= Solve[F[x,y[x,c]]==c,{y[x,c]}][[1]]

$$\left\{ y[x, c] \rightarrow \frac{2 \cdot 2^{1/3}}{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}} + \frac{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}}{3 \cdot 2^{1/3} x^2} \right\}$$

q[x_,c_]:=y[x,c] /.solv0;

q[x,c]

$$\frac{2 \cdot 2^{1/3}}{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}} + \frac{\left(27 c x^4 - 27 x^5 + \sqrt{-864 x^6 + (27 c x^4 - 27 x^5)^2} \right)^{1/3}}{3 \cdot 2^{1/3} x^2}$$

Plot[Evaluate[Table[q[x,c],{c,-5,5}],{x,-10,10}];

Plot::plnr :

$\frac{2 \cdot 2^{1/3}}{(-135 x^4 - \langle\langle 1 \rangle\rangle + \sqrt{\langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle})^{1/3}} + \frac{(\langle\langle 1 \rangle\rangle)^{1/3}}{3 \cdot 2^{1/3} x^2}$ is not a machine-size real number at x = -4.13864. Mehr...

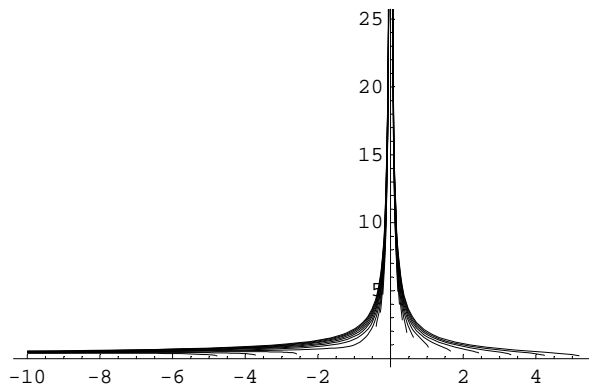
Plot::plnr :

$\frac{2 \cdot 2^{1/3}}{(-135 x^4 - \langle\langle 1 \rangle\rangle + \sqrt{\langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle})^{1/3}} + \frac{(\langle\langle 1 \rangle\rangle)^{1/3}}{3 \cdot 2^{1/3} x^2}$ is not a machine-size real number at x = -4.57208. Mehr...

Plot::plnr :

$\frac{2 \cdot 2^{1/3}}{(-135 x^4 - \langle\langle 1 \rangle\rangle + \sqrt{\langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle})^{1/3}} + \frac{(\langle\langle 1 \rangle\rangle)^{1/3}}{3 \cdot 2^{1/3} x^2}$ is not a machine-size real number at x = -4.76253. Mehr...

General::stop : Further output of Plot::plnr will be suppressed during this calculation. Mehr...



iii

y'[x]==-f[x,y[x]]/g[x,y[x]] (* D'Gl. *)

$$y'[x] = -\frac{1 + 2 x y[x]^3}{-2 + 3 x^2 y[x]^2}$$

DSolve[y'[x]==-f[x,y[x]]/g[x,y[x]],y[x],x]

$$\left\{ \left\{ y[x] \rightarrow \frac{2 \cdot 2^{1/3}}{\left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}} + \frac{\left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}}{3 \cdot 2^{1/3} x^2} \right\}, \right. \\ \left. \left\{ y[x] \rightarrow -\frac{2^{1/3} (1 + i \sqrt{3})}{\left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}} - \frac{(1 - i \sqrt{3}) \left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}}{6 \cdot 2^{1/3} x^2} \right\}, \right. \\ \left. \left\{ y[x] \rightarrow -\frac{2^{1/3} (1 - i \sqrt{3})}{\left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}} - \frac{(1 + i \sqrt{3}) \left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}}{6 \cdot 2^{1/3} x^2} \right\} \right\}$$

```
DSolve[y'[x]==-f[x,y[x]]/g[x,y[x]],y[x],x][[1]]
```

$$\left\{ y[x] \rightarrow \frac{2 \cdot 2^{1/3}}{\left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}} + \frac{\left(-27 x^5 + 27 x^4 C[1] + \sqrt{-864 x^6 + (-27 x^5 + 27 x^4 C[1])^2} \right)^{1/3}}{3 \cdot 2^{1/3} x^2} \right\}$$

```
solvl=DSolve[y'[x]==-f[x,y[x]]/g[x,y[x]],y[x],x][[1]]/N
```

$$\left\{ y[x] \rightarrow \frac{2.51984}{\left(-27. x^5 + 27. x^4 C[1] + \sqrt{-864. x^6 + (-27. x^5 + 27. x^4 C[1])^2} \right)^{1/3}} + \frac{0.264567 \left(-27. x^5 + 27. x^4 C[1] + \sqrt{-864. x^6 + (-27. x^5 + 27. x^4 C[1])^2} \right)^{1/3}}{x^2} \right\}$$

```
z[x_]:=y[x]/.solvl[[1]]
```

```
z[x]/.C[1]->c
```

$$\frac{2.51984}{\left(27. c x^4 - 27. x^5 + \sqrt{-864. x^6 + (27. c x^4 - 27. x^5)^2} \right)^{1/3}} + \frac{0.264567 \left(27. c x^4 - 27. x^5 + \sqrt{-864. x^6 + (27. c x^4 - 27. x^5)^2} \right)^{1/3}}{x^2}$$

```
Plot[Evaluate[Table[z[x]/.C[1]->c,{c,-5,5}],{x,-10,10}];
```

```
Plot::plnr :
```

$\frac{2.51984}{(-135. x^4 - \langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle)^{1/3}} + \frac{0.264567 \langle\langle 1 \rangle\rangle}{x^2}$ is not a machine-size real number at x = -4.13864. Mehr...

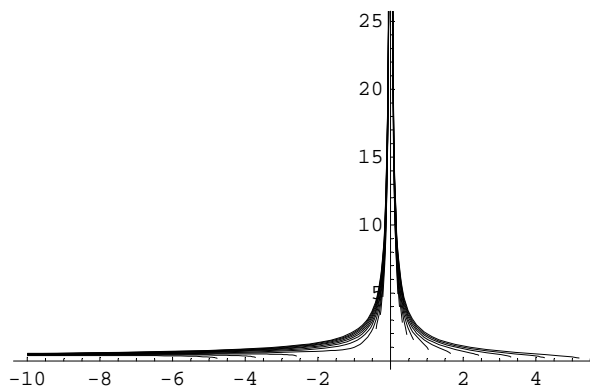
```
Plot::plnr :
```

$\frac{2.51984}{(-135. x^4 - \langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle)^{1/3}} + \frac{0.264567 \langle\langle 1 \rangle\rangle}{x^2}$ is not a machine-size real number at x = -4.57208. Mehr...

```
Plot::plnr :
```

$\frac{2.51984}{(-135. x^4 - \langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle)^{1/3}} + \frac{0.264567 \langle\langle 1 \rangle\rangle}{x^2}$ is not a machine-size real number at x = -4.76253. Mehr...

```
General::stop : Further output of Plot::plnr will be suppressed during this calculation. Mehr...
```



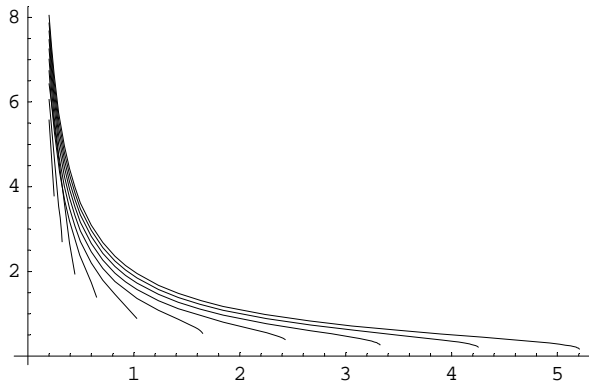
```
Plot[Evaluate[Table[z[x]/.C[1]->c,{c,-5,5}],{x,0.2,10}];
```

```
Plot::plnr :  $\frac{2.51984}{(-135. x^4 - \langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle)^{1/3} + \frac{0.264567 \langle\langle 1 \rangle\rangle}{x^2}}$   
is not a machine-size real number at x = 0.5975565174145747`. Mehr...
```

```
Plot::plnr :  $\frac{2.51984}{(-135. x^4 - \langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle)^{1/3} + \frac{0.264567 \langle\langle 1 \rangle\rangle}{x^2}}$   
is not a machine-size real number at x = 1.031126238621862`. Mehr...
```

```
Plot::plnr :  $\frac{2.51984}{(-135. x^4 - \langle\langle 1 \rangle\rangle + \langle\langle 1 \rangle\rangle)^{1/3} + \frac{0.264567 \langle\langle 1 \rangle\rangle}{x^2}}$   
is not a machine-size real number at x = 0.3935320734775977`. Mehr...
```

```
General::stop : Further output of Plot::plnr will be suppressed during this calculation. Mehr...
```



(*Gesucht ist nur die reelle Lösung! *)

```
D[f[x,y],y]==D[g[x,y],x]
```

```
True
```

b

```
Remove["Global`*"];
```

```
F[x_,y_]:= x^2 y^3 +x -2 y
```

```
Dt[F[x,y]] (* Totales Differential *)
```

```
Dt[x] + 2 x y^3 Dt[x] - 2 Dt[y] + 3 x^2 y^2 Dt[y]
```

```
Collect[%,{ Dt[x], Dt[y]}]
```

```
(1 + 2 x y^3) Dt[x] + (-2 + 3 x^2 y^2) Dt[y]
```

```
f[x_,y_]:= Evaluate[D[F[u,y]+u*y,u]/.u->x]; f[x,y]
```

```
1 + y + 2 x y^3
```

```
g[x_,y_]:= Evaluate[D[F[x,u],u]/.u->y]; g[x,y]
```

```
-2 + 3 x^2 y^2
```

```
D[f[x,y],y]==D[g[x,y],x]
```

```
1 + 6 x y^2 == 6 x y^2
```

c

```

f[x_,y_]:= -x y^2 + x^3*y^3 + 2*x*y^3; f[x,y]//TeXForm;
g[x_,y_]:= -2 y + 3*x^2*y^2;
(D[f[x,y],y]-D[g[x,y],x])/g[x,y] // Simplify

x

f[x,y]//TeXForm
x^3 y^3+2 x y^3-x y^2

g[x,y]//TeXForm
3 x^2 y^2-2 y

M[x_]:=E^(Integrate[Evaluate[(D[f[x,y],y]-D[g[x,y],x])/g[x,y]],x]);
M[x]

e^(x^2/2)

Integrate[InputForm[M[x]]*f[x,y],x]

∫ (-x y^2 + 2 x y^3 + x^3 y^3) E^(x^2/2) dx

Integrate[InputForm[M[x]]*g[x,y],y]

-y^2 E^(x^2/2) + x^2 y^3 E^(x^2/2)

Integrate[M[x]*g[x,y],y]//InputForm
E^(x^2/2)*(-y^2 + x^2*y^3)

Solve[Evaluate[Integrate[InputForm[M[x]]*g[x,y],y]],{y}]

Solve::eqf : -y^2 E^(x^2/2) + x^2 y^3 E^(x^2/2) is not a well-formed equation. Mehr...

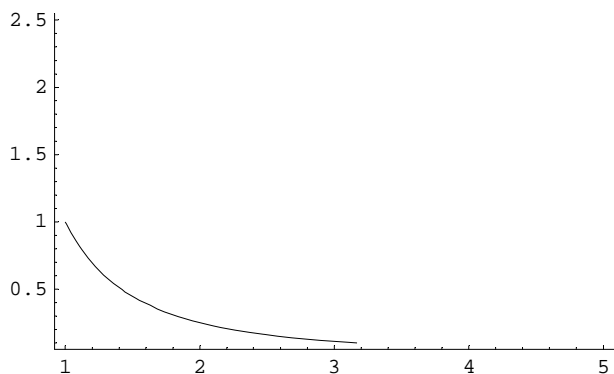
Solve::eqf : -y^2 E^(x^2/2) + x^2 y^3 E^(x^2/2) is not a well-formed equation. Mehr...

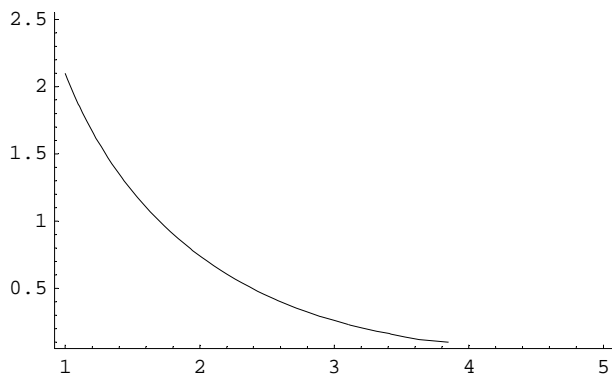
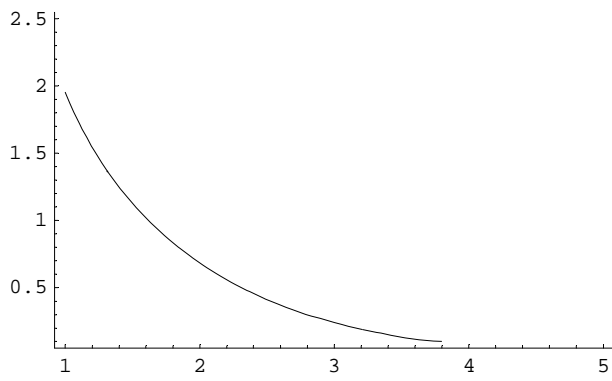
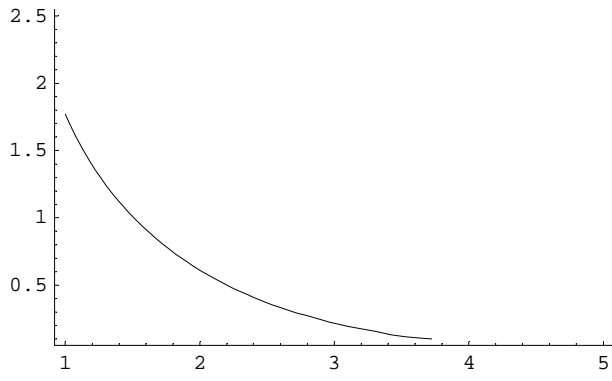
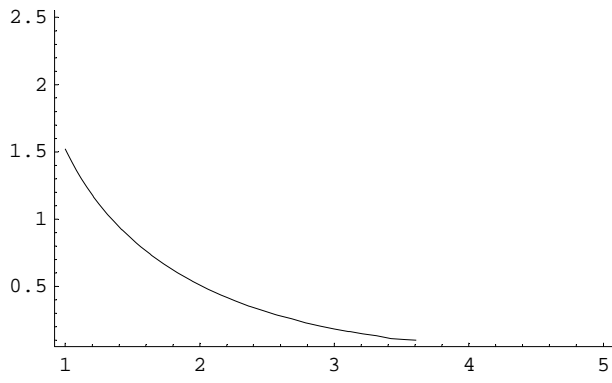
Solve[-y^2 E^(x^2/2) + x^2 y^3 E^(x^2/2), {y}]

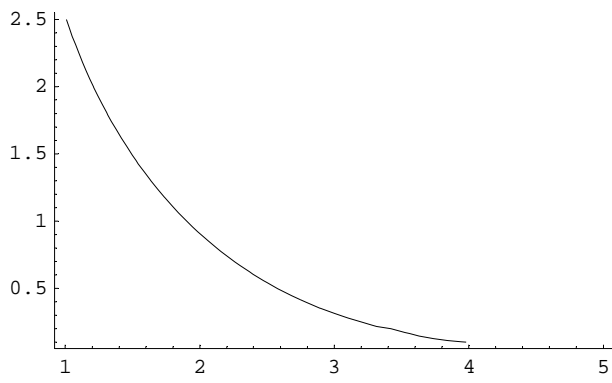
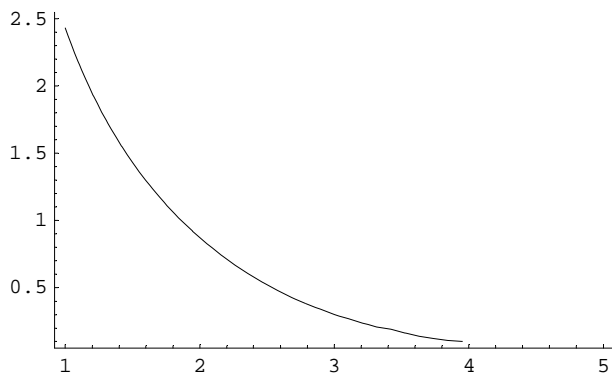
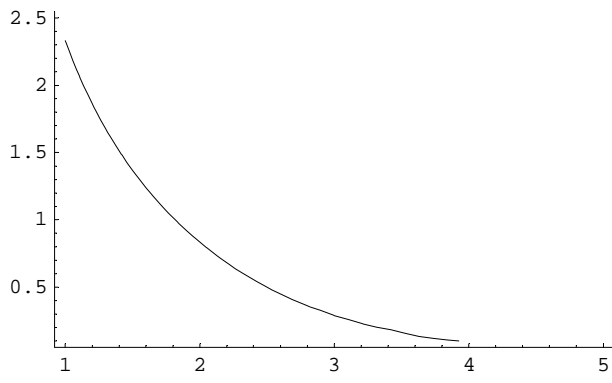
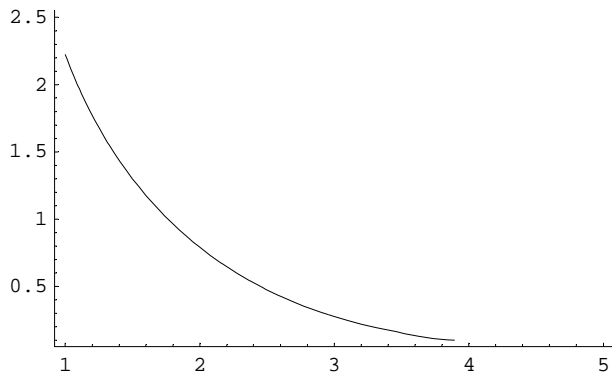
<< Graphics`ImplicitPlot`

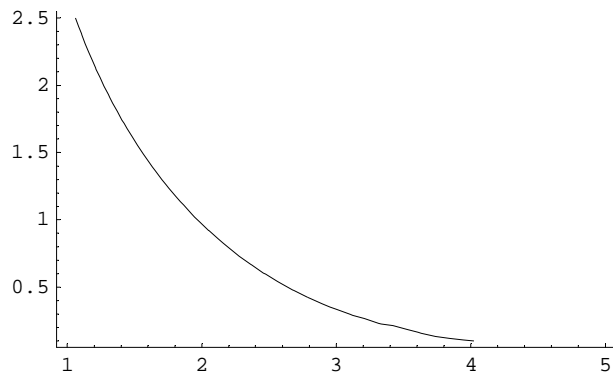
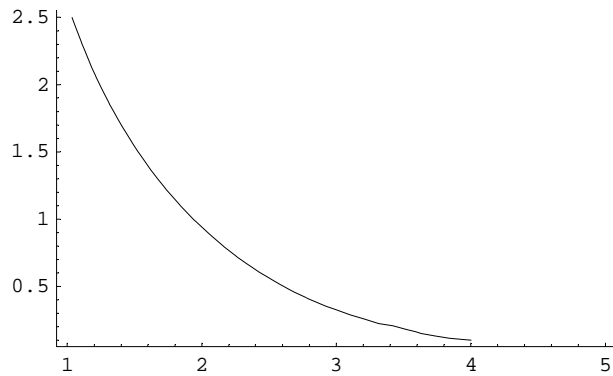
Table[ImplicitPlot[ E^(x^2/2)*(-y^2 + x^2*y^3) == k , {x, 1,5}, {y,
0.1,2.5}],{k,0,20,2}];

```









y'[x]==-f[x,y[x]]/g[x,y[x]] (* D'Gl. *)

$$y'[x] = -\frac{-x y[x]^2 + 2 x y[x]^3 + x^3 y[x]^3}{-2 y[x] + 3 x^2 y[x]^2}$$

DSolve[y'[x]==-f[x,y[x]]/g[x,y[x]],y[x],x]

Solve::tdep : The equations appear to involve the variables to be solved for in an essentially non-algebraic way. Mehr...

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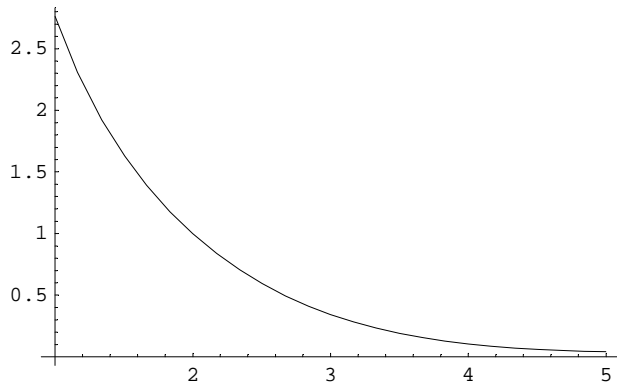
General::stop : Further output of Solve::tdep will be suppressed during this calculation. Mehr...

$$\text{Solve}\left[-\frac{20}{3} \text{RootSum}\left[-20 + 21 2^{2/3} 5^{1/3} \#1 - 20 \#1^3 \&, \frac{\text{Log}\left[-\#1 + \frac{3\left(\frac{-4+x^2}{3x} - \frac{2(-4+x^2)}{x(-2+3x^2y[x])}\right)}{2^{2/3} 5^{1/3} \left(\frac{-64+48x^2-12x^4+x^6}{x^3}\right)^{1/3}}\right]}{7 2^{2/3} 5^{1/3} - 20 \#1^2} \&\right] =$$

$$C[1] - \frac{\left(\frac{5}{2}\right)^{2/3} (-4 + x^2) (x^2 - 8 \text{Log}[x])}{27 x \left(\frac{(-4+x^2)^3}{x^3}\right)^{1/3}}, y[x]$$

d

```
solution=NDSolve[{y'[x]==-f[x,y[x]]/g[x,y[x]],y[2]== 1},y,{x,1,5},
WorkingPrecision->24];Plot[y[x]/.solution,{x,1,5}];
```



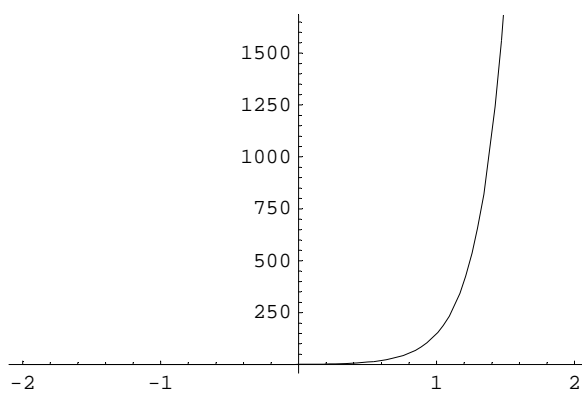
2

a

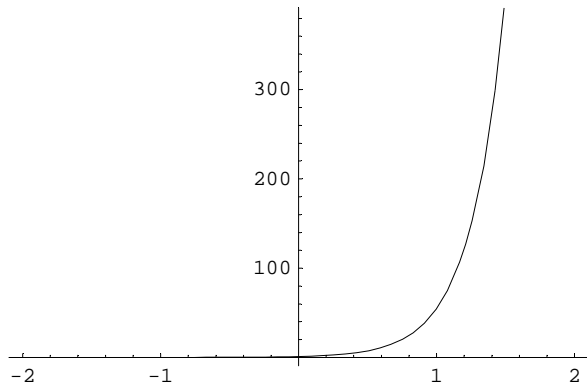
```
Remove["Global`*"];
m1[k_,y0_]:=Module[{x,y},
solv = Flatten[
DSolve[{y'[x]+ k y[x]==0, y[0]==y0},y,x]];
y = y/.solv;
Print["k = ",k, " / y[x] = ",y[x]];
Plot[y[x],{x,-2,2}]]];
```

```
Table[m1[k,1],{k,-5,5}];
```

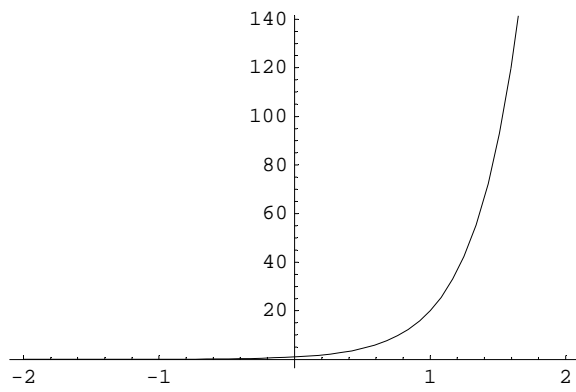
k = -5 / y[x] = e^{5x8858}



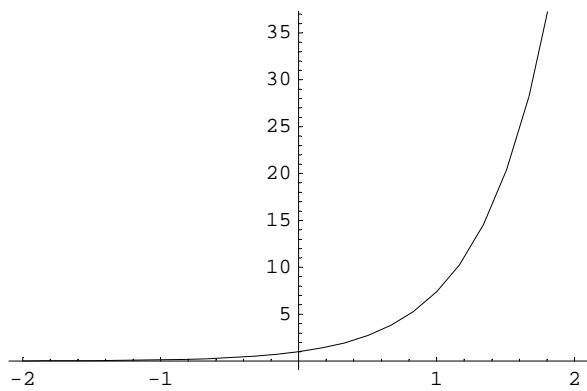
k = -4 / y[x] = e^{4x8864}



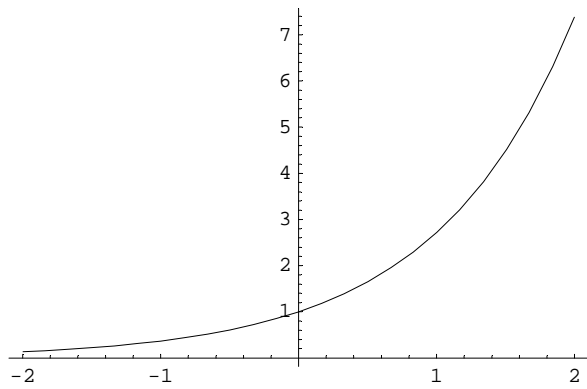
$$k = -3 / y[x] = e^{3x}$$



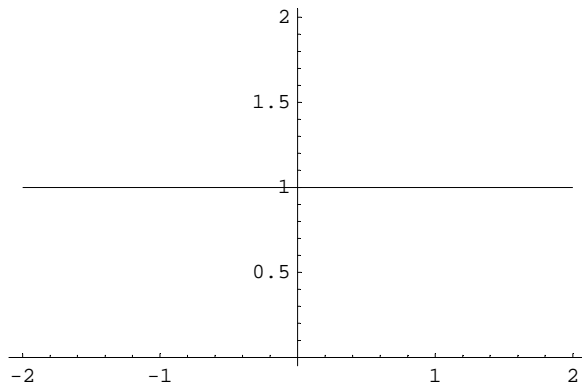
$$k = -2 / y[x] = e^{2x}$$



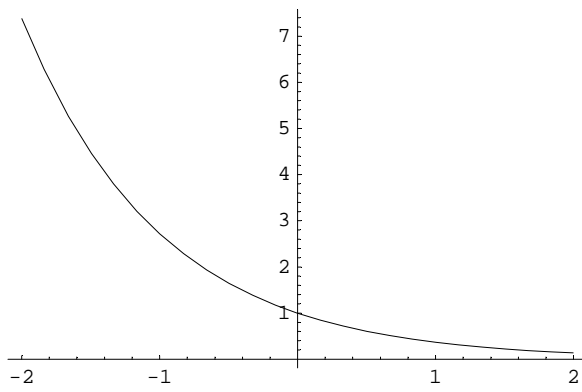
$$k = -1 / y[x] = e^x$$



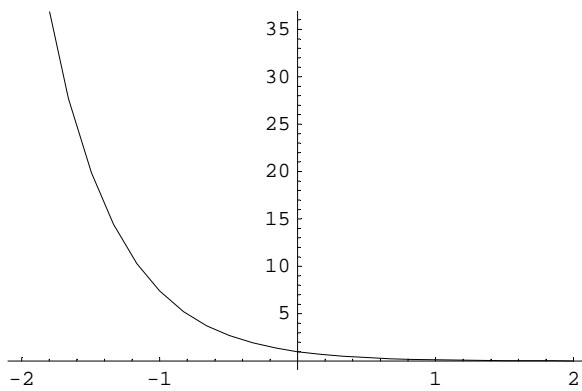
$$k = 0 / y[x] = 1$$



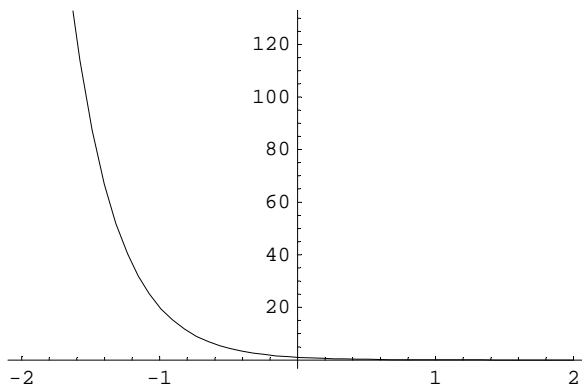
$$k = 1 / y[x] = e^{-x \times 894}$$



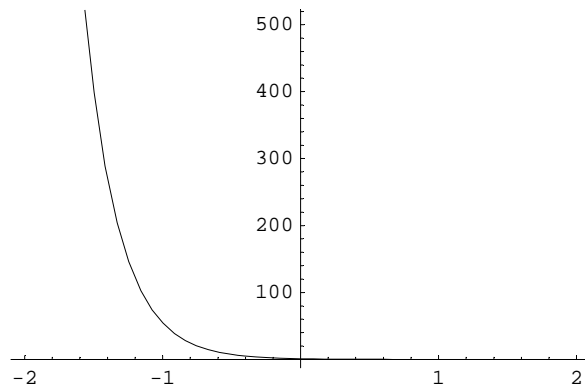
$$k = 2 / y[x] = e^{-2 \times x \times 900}$$



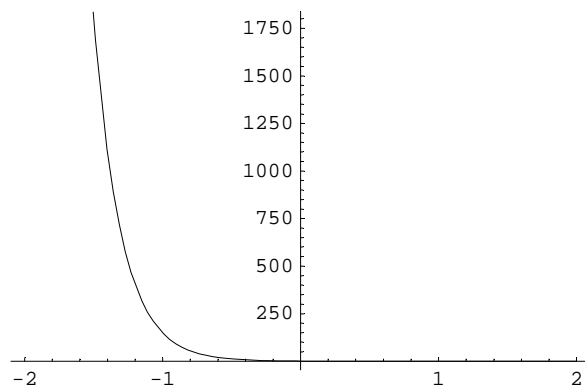
$$k = 3 / y[x] = e^{-3 \times x \times 906}$$



$$k = 4 / y[x] = e^{-4 \times x \times 912}$$



$$k = 5 / y[x] = e^{-5 x^{918}}$$



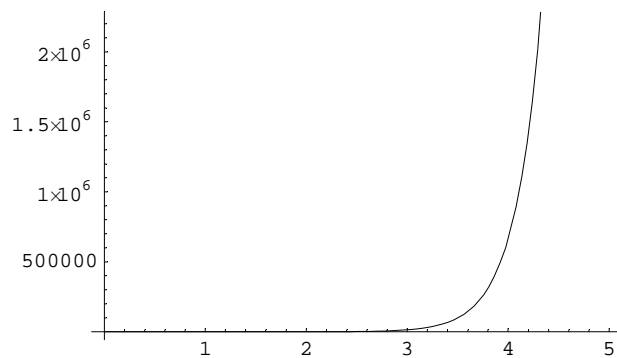
b

i

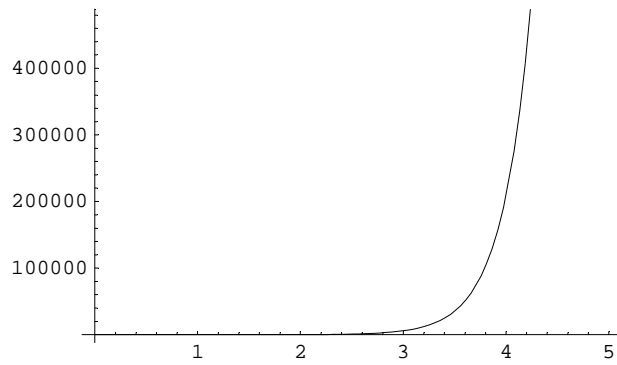
```
Remove["Global`*"];
m2[k1_,k2_,y0_,y1_]:=Module[{x,y},
solv =
DSolve[{y''[x]+ k1 y'[x]+ k2 y[x]==0, y[0]==y0, y'[0]==y1},y,x];
y = y/.solv[[1]];
Print["k1 = ",k1," k2 = ",k2, " / y[x] = ",y[x]//Simplify];
Plot[y[x],{x,0,5}]];
```

```
Table[m2[k1,k2,1,0],{k1,-3,3},{k2,-3,3}];
```

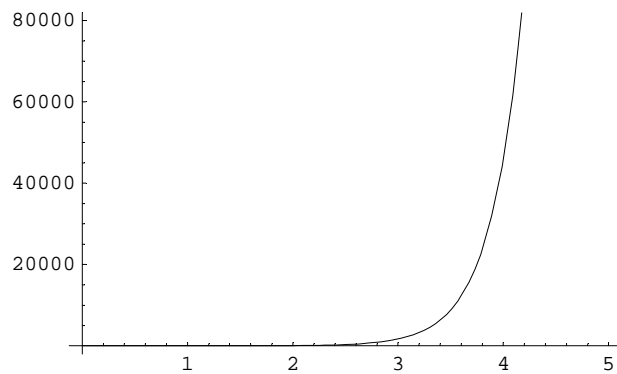
$$k1 = -3 \quad k2 = -3 / y[x] = \frac{1}{14} e^{-\frac{1}{2}(-3+\sqrt{21})x^{924}} (7 + \sqrt{21} - (-7 + \sqrt{21}) e^{\sqrt{21} x^{924}})$$



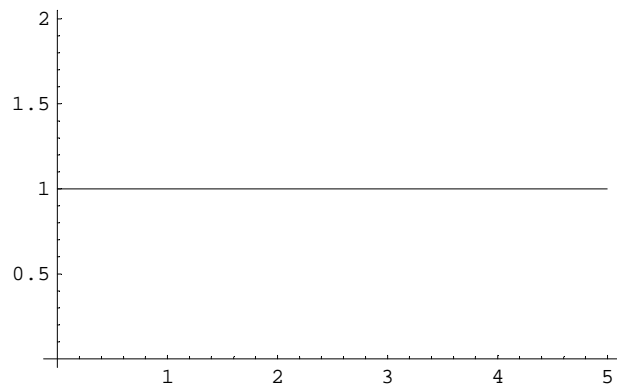
$$k1 = -3 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{34} e^{-\frac{1}{2}(-3+\sqrt{17})x^{933}} (17 + 3\sqrt{17} + (17 - 3\sqrt{17}) e^{\sqrt{17}x^{933}})$$



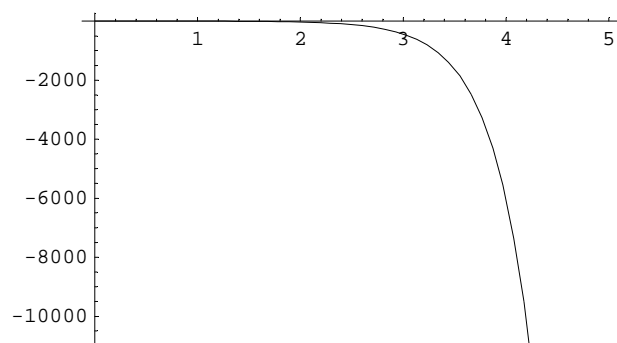
$$k1 = -3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{26} e^{-\frac{1}{2}(-3+\sqrt{13})x^{940}} (13 + 3\sqrt{13} + (13 - 3\sqrt{13}) e^{\sqrt{13}x^{940}})$$



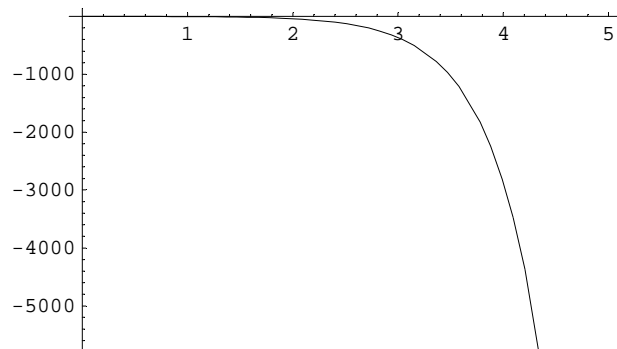
$$k1 = -3 \quad k2 = 0 \quad / \quad y[x] = 1$$



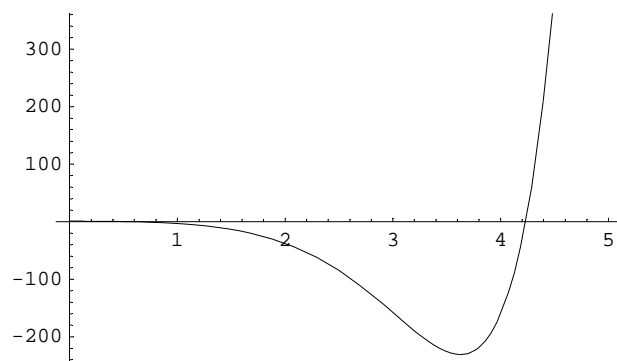
$$k1 = -3 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{10} e^{-\frac{1}{2}(-3+\sqrt{5})x^{954}} (5 + 3\sqrt{5} + (5 - 3\sqrt{5}) e^{\sqrt{5}x^{954}})$$



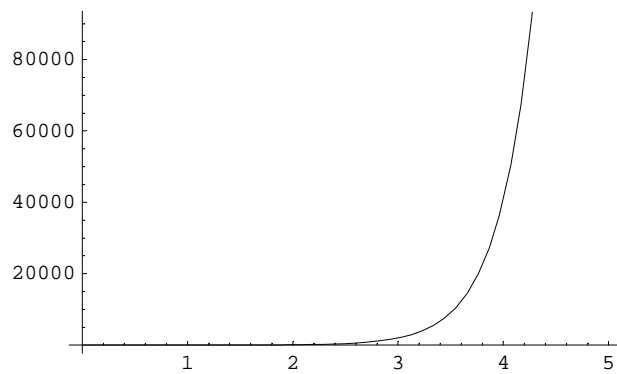
$$k1 = -3 \quad k2 = 2 \quad / \quad y[x] = -e^{x^{961}} (-2 + e^{x^{961}})$$



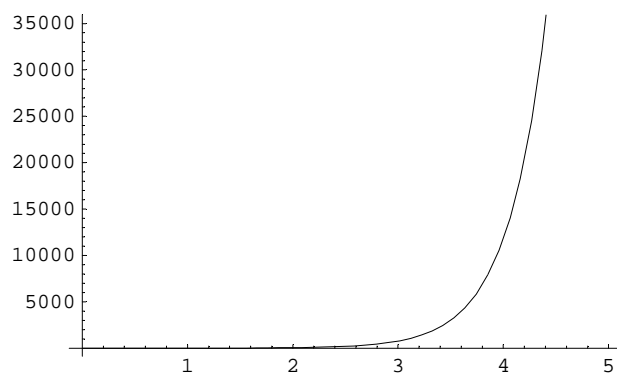
$$k1 = -3 \quad k2 = 3 \quad / \quad y[x] = e^{3x^{967/2}} \left(\cos\left[\frac{\sqrt{3}x^{967}}{2}\right] - \sqrt{3} \sin\left[\frac{\sqrt{3}x^{967}}{2}\right] \right)$$



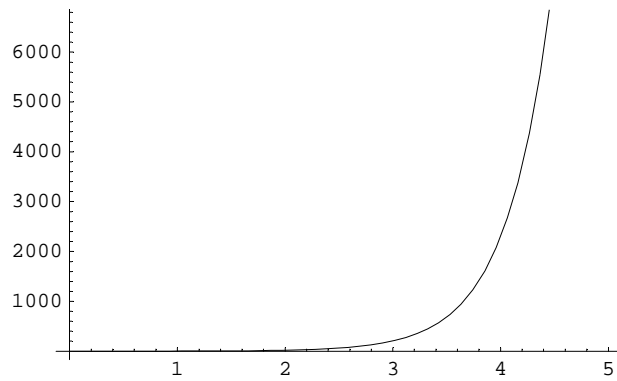
$$k1 = -2 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{4} e^{-x^{973}} (3 + e^{4x^{973}})$$



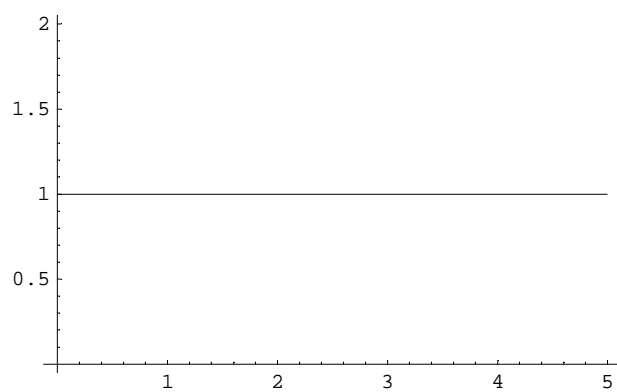
$$k1 = -2 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{6} e^{x^{979} - \sqrt{3}x^{979}} (3 + \sqrt{3} - (-3 + \sqrt{3}) e^{2\sqrt{3}x^{979}})$$



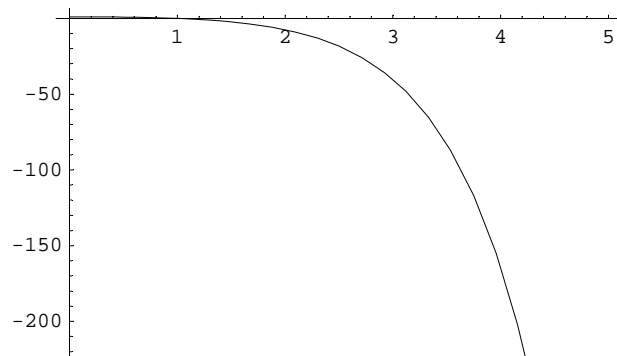
$$k1 = -2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{4} e^{x^{986} - \sqrt{2} x^{986}} (2 + \sqrt{2} - (-2 + \sqrt{2}) e^{2\sqrt{2} x^{986}})$$



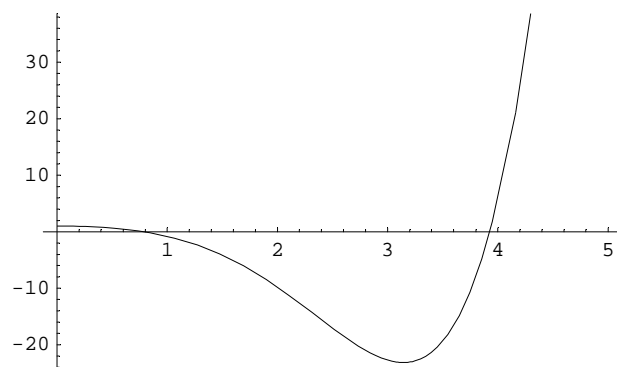
$$k1 = -2 \quad k2 = 0 \quad / \quad y[x] = 1$$



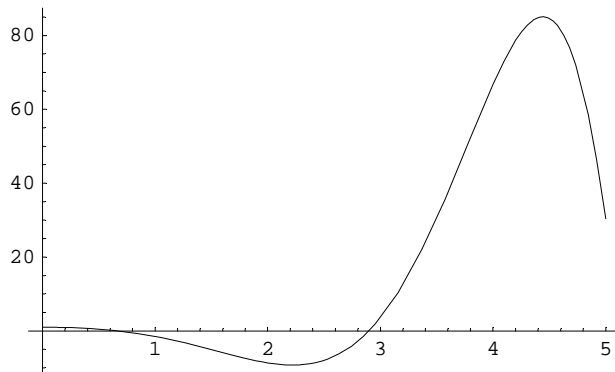
$$k1 = -2 \quad k2 = 1 \quad / \quad y[x] = -e^{x^{1000}} (-1 + x^{1000})$$



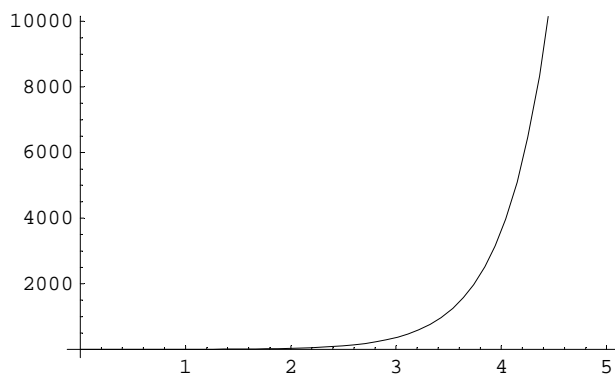
$$k1 = -2 \quad k2 = 2 \quad / \quad y[x] = e^{x^{1006}} (\cos[x^{1006}] - \sin[x^{1006}])$$



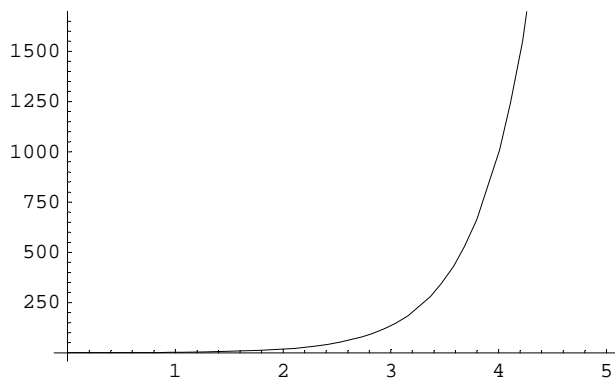
$$k1 = -2 \quad k2 = 3 \quad / \quad y[x] = e^{x^{1012}} \cos[\sqrt{2} x^{1012}] - \frac{e^{x^{1012}} \sin[\sqrt{2} x^{1012}]}{\sqrt{2}}$$



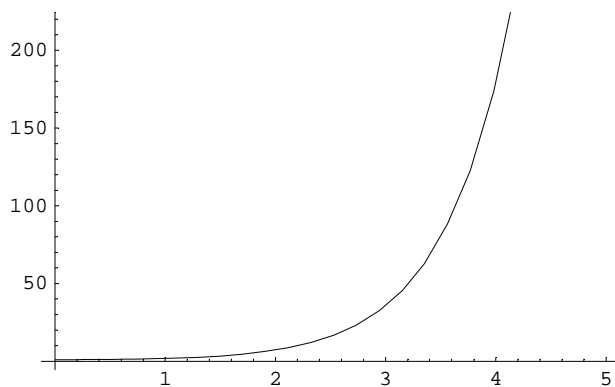
$$k1 = -1 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{26} e^{-\frac{1}{2}(-1+\sqrt{13})x^{1018}} (13 + \sqrt{13} - (-13 + \sqrt{13}) e^{\sqrt{13} x^{1018}})$$



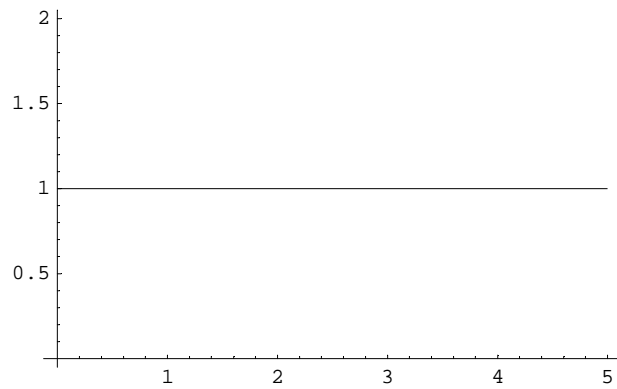
$$k1 = -1 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{3} e^{-x^{1025}} (2 + e^{3x^{1025}})$$



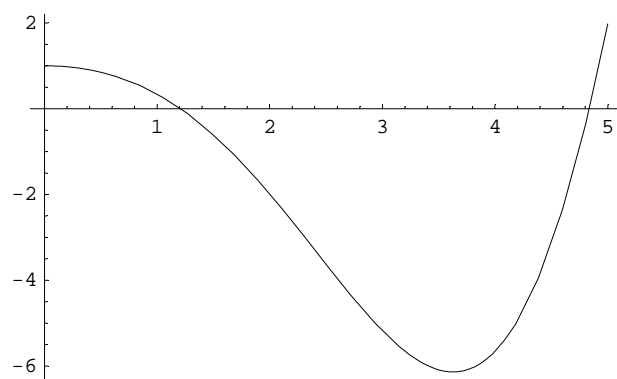
$$k1 = -1 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{10} e^{-\frac{1}{2}(-1+\sqrt{5})x^{1031}} (5 + \sqrt{5} - (-5 + \sqrt{5}) e^{\sqrt{5} x^{1031}})$$



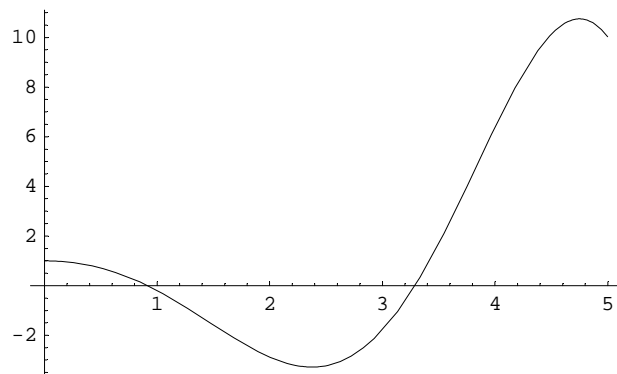
$$k_1 = -1 \quad k_2 = 0 \quad / \quad y[x] = 1$$



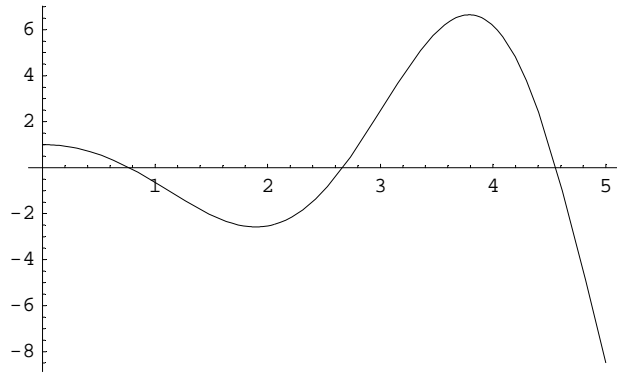
$$k_1 = -1 \quad k_2 = 1 \quad / \quad y[x] = -\frac{1}{3} e^{x^{1044/2}} \left(-3 \cos\left[\frac{\sqrt{3} x^{1044}}{2}\right] + \sqrt{3} \sin\left[\frac{\sqrt{3} x^{1044}}{2}\right] \right)$$



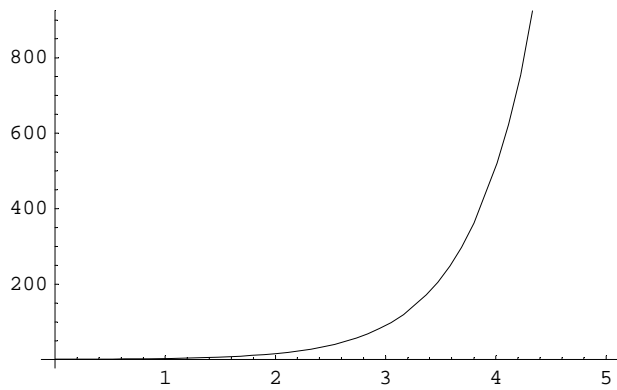
$$k_1 = -1 \quad k_2 = 2 \quad / \quad y[x] = -\frac{1}{7} e^{x^{1050/2}} \left(-7 \cos\left[\frac{\sqrt{7} x^{1050}}{2}\right] + \sqrt{7} \sin\left[\frac{\sqrt{7} x^{1050}}{2}\right] \right)$$



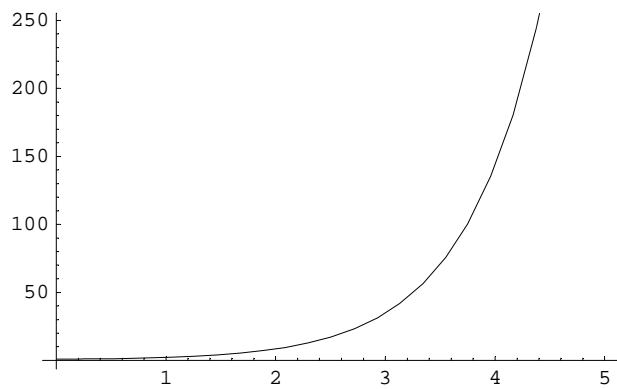
$$k_1 = -1 \quad k_2 = 3 \quad / \quad y[x] = -\frac{1}{11} e^{x^{1056/2}} \left(-11 \cos\left[\frac{\sqrt{11} x^{1056}}{2}\right] + \sqrt{11} \sin\left[\frac{\sqrt{11} x^{1056}}{2}\right] \right)$$



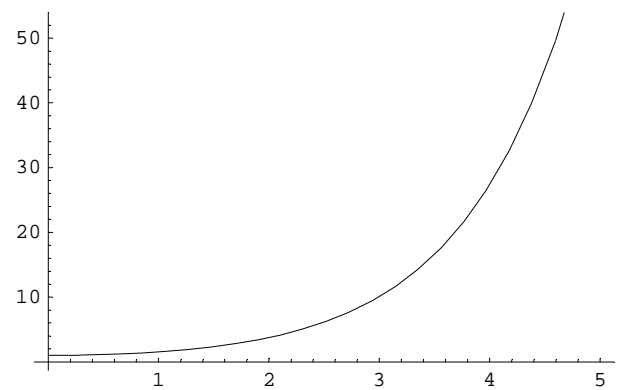
$$k1 = 0 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{2} e^{-\sqrt{3} x} (1 + e^{2\sqrt{3} x})$$



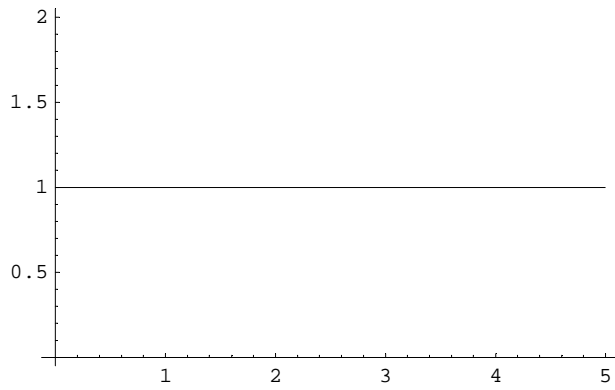
$$k1 = 0 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{2} e^{-\sqrt{2} x} (1 + e^{2\sqrt{2} x})$$



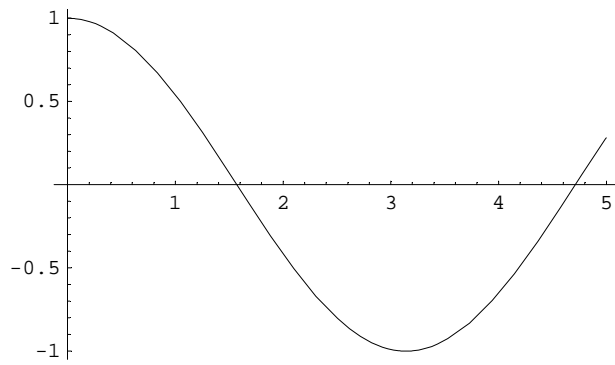
$$k1 = 0 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{2} e^{-x} (1 + e^{2x})$$



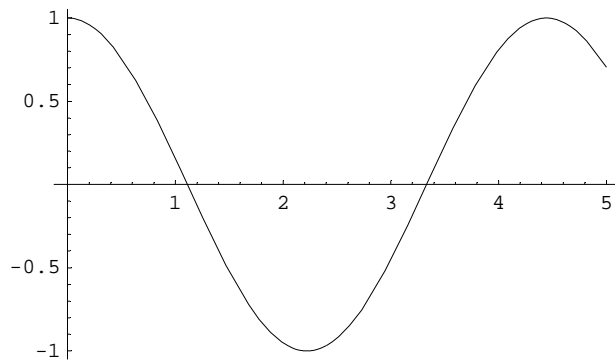
$$k1 = 0 \quad k2 = 0 \quad / \quad y[x] = 1$$



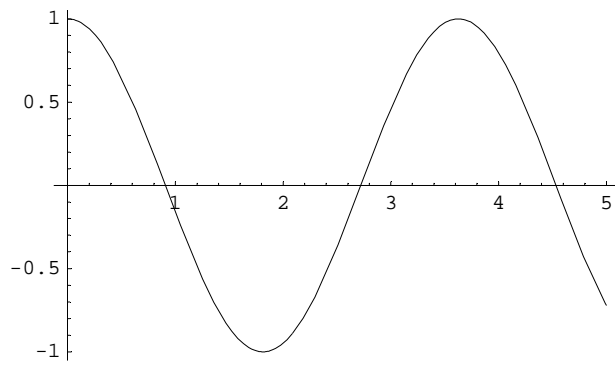
$$k_1 = 0 \quad k_2 = 1 \quad / \quad y[x] = \text{Cos}[x\$1086]$$



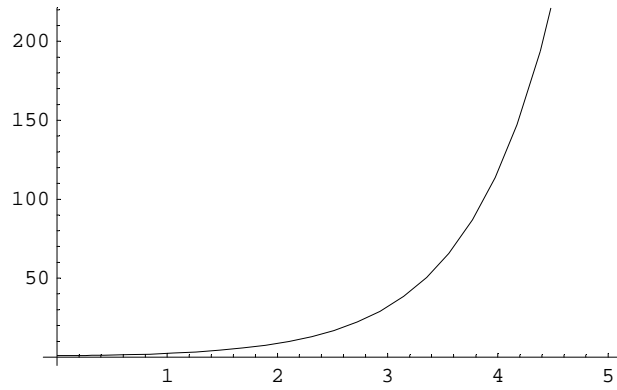
$$k_1 = 0 \quad k_2 = 2 \quad / \quad y[x] = \text{Cos}[\sqrt{2} x\$1092]$$



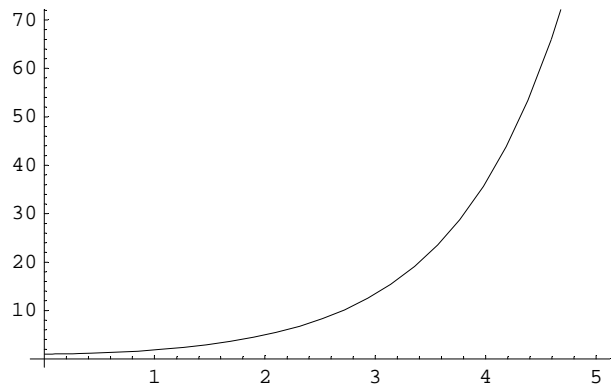
$$k_1 = 0 \quad k_2 = 3 \quad / \quad y[x] = \text{Cos}[\sqrt{3} x\$1098]$$



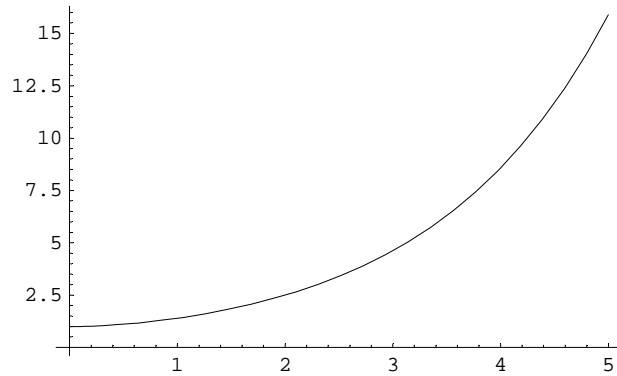
$$k_1 = 1 \quad k_2 = -3 \quad / \quad y[x] = \frac{1}{26} e^{-\frac{1}{2}(1+\sqrt{13})x\$1104} (13 - \sqrt{13} + (13 + \sqrt{13}) e^{\sqrt{13} x\$1104})$$



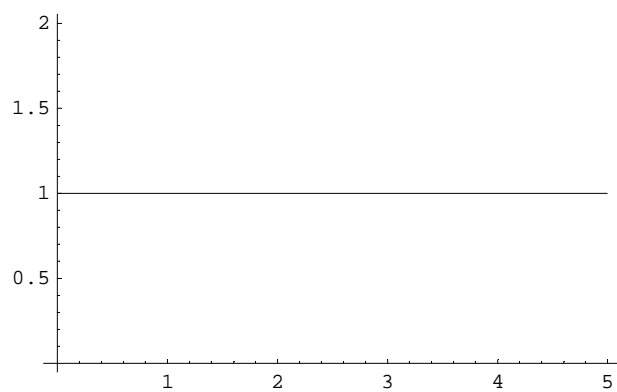
$$k1 = 1 \quad k2 = -2 / \quad y[x] = \frac{e^{-2x} x^{1111}}{3} + \frac{2 e^{x} x^{1111}}{3}$$



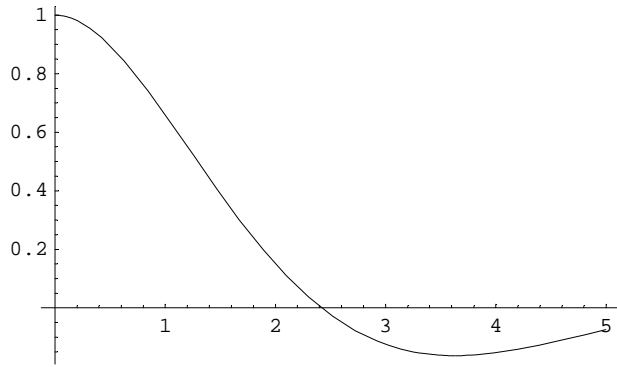
$$k1 = 1 \quad k2 = -1 / \quad y[x] = \frac{1}{10} e^{-\frac{1}{2}(1+\sqrt{5})x} (5 - \sqrt{5} + (5 + \sqrt{5}) e^{\sqrt{5}x})$$



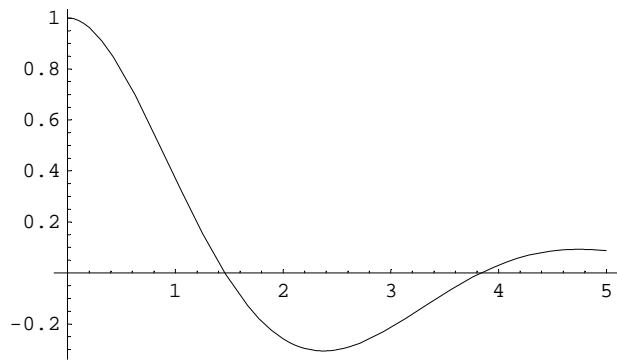
$$k1 = 1 \quad k2 = 0 / \quad y[x] = 1$$



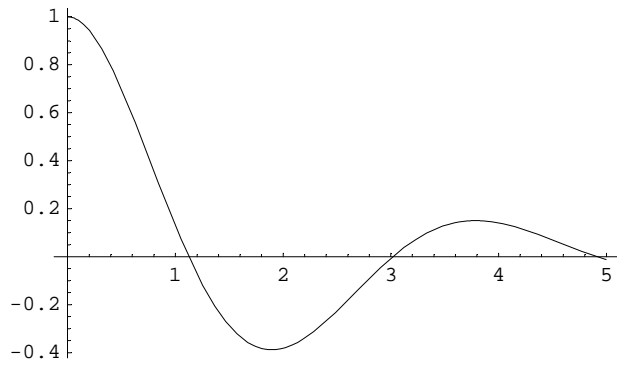
$$k1 = 1 \quad k2 = 1 / \quad y[x] = \frac{1}{3} e^{-x} \left(3 \cos\left[\frac{\sqrt{3}x}{2}\right] + \sqrt{3} \sin\left[\frac{\sqrt{3}x}{2}\right] \right)$$



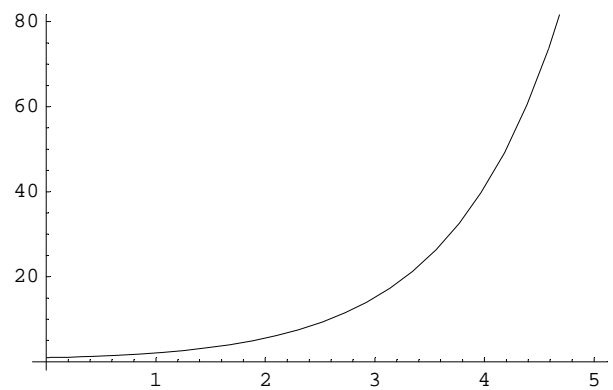
$$k1 = 1 \quad k2 = 2 \quad / \quad Y[x] = \frac{1}{7} e^{-x^{1137/2}} \left(7 \operatorname{Cos}\left[\frac{\sqrt{7} x^{1137}}{2}\right] + \sqrt{7} \operatorname{Sin}\left[\frac{\sqrt{7} x^{1137}}{2}\right] \right)$$



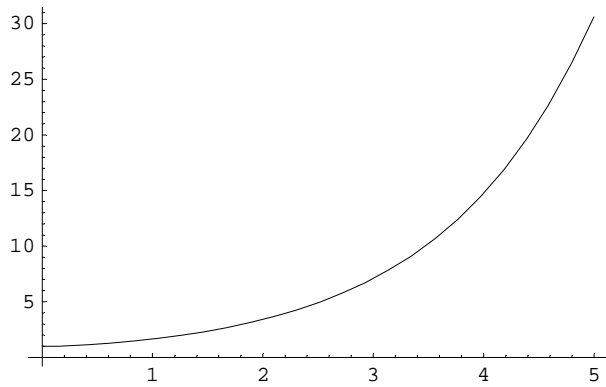
$$k1 = 1 \quad k2 = 3 \quad / \quad Y[x] = \frac{1}{11} e^{-x^{1143/2}} \left(11 \operatorname{Cos}\left[\frac{\sqrt{11} x^{1143}}{2}\right] + \sqrt{11} \operatorname{Sin}\left[\frac{\sqrt{11} x^{1143}}{2}\right] \right)$$



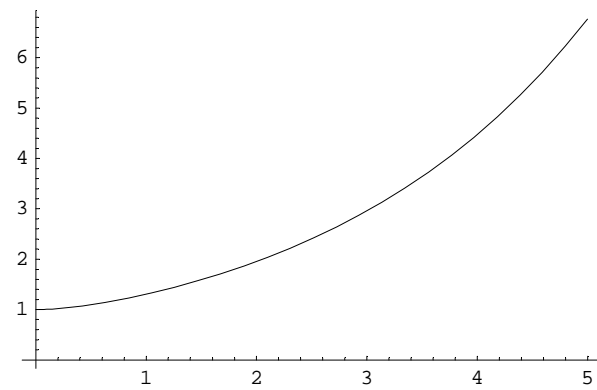
$$k1 = 2 \quad k2 = -3 \quad / \quad Y[x] = \frac{e^{-3x^{1149}}}{4} + \frac{3e^{x^{1149}}}{4}$$



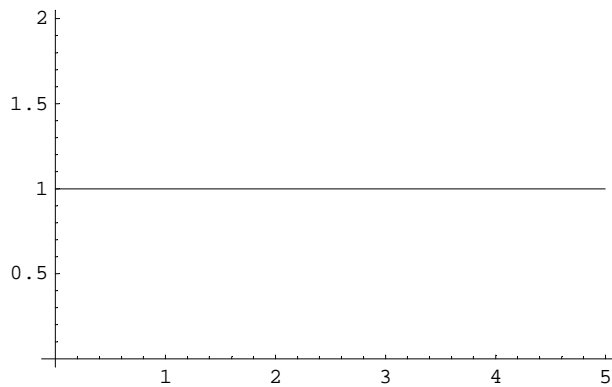
$$k1 = 2 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{6} e^{-(1+\sqrt{3})x} (3 - \sqrt{3}) + (3 + \sqrt{3}) e^{2\sqrt{3}x}$$



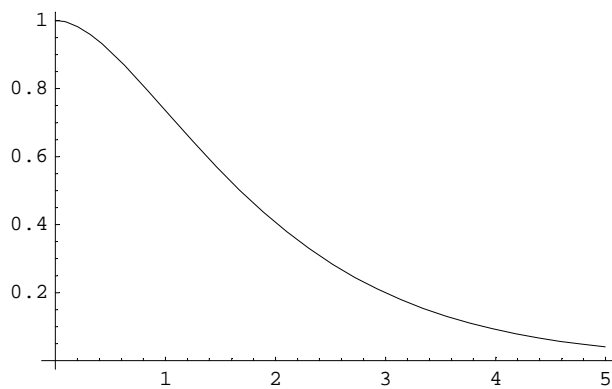
$$k1 = 2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{4} e^{-(1+\sqrt{2})x} (2 - \sqrt{2}) + (2 + \sqrt{2}) e^{2\sqrt{2}x}$$



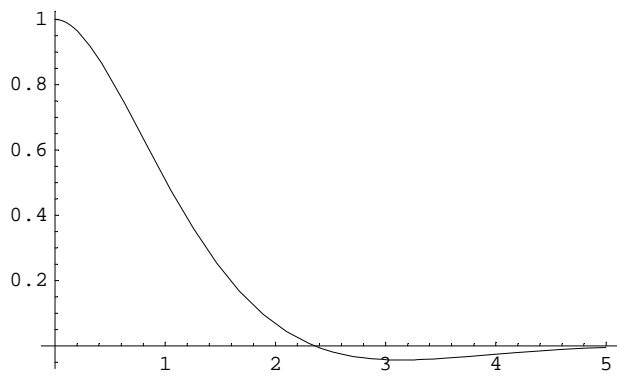
$$k1 = 2 \quad k2 = 0 \quad / \quad y[x] = 1$$



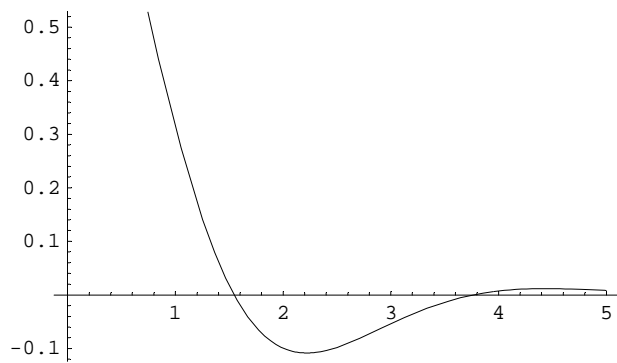
$$k1 = 2 \quad k2 = 1 \quad / \quad y[x] = e^{-x} (1 + x)$$



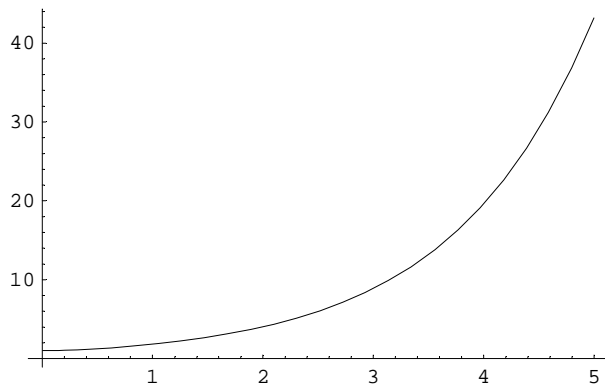
$$k1 = 2 \quad k2 = 2 / \quad y[x] = e^{-x^{1182}} (\cos[x^{1182}] + \sin[x^{1182}])$$



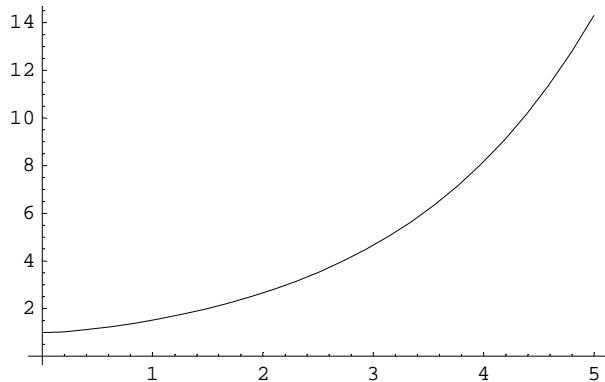
$$k1 = 2 \quad k2 = 3 / \quad y[x] = \frac{1}{2} e^{-x^{1188}} (2 \cos[\sqrt{2} x^{1188}] + \sqrt{2} \sin[\sqrt{2} x^{1188}])$$



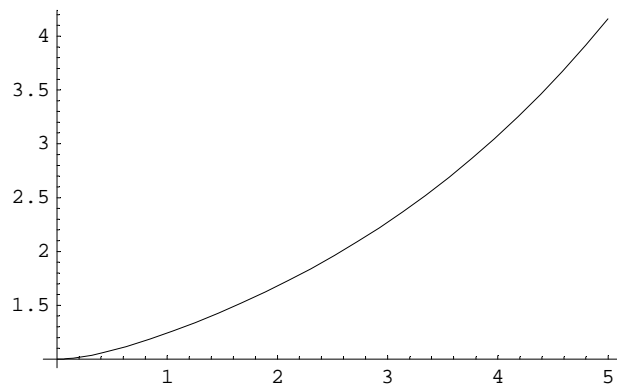
$$k1 = 3 \quad k2 = -3 / \quad y[x] = \frac{1}{14} e^{-\frac{1}{2} (3+\sqrt{21}) x^{1194}} (7 - \sqrt{21} + (7 + \sqrt{21}) e^{\sqrt{21} x^{1194}})$$



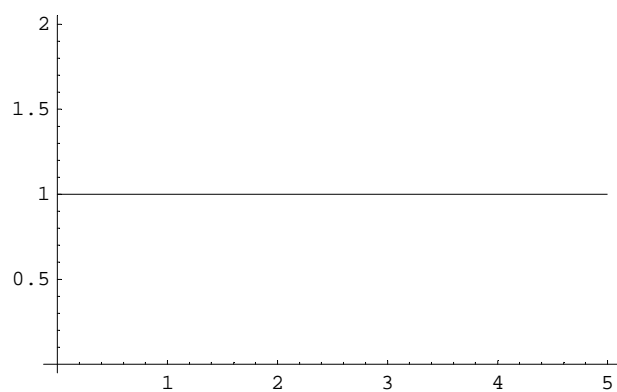
$$k1 = 3 \quad k2 = -2 / \quad y[x] = \frac{1}{34} e^{-\frac{1}{2} (3+\sqrt{17}) x^{1201}} (17 - 3\sqrt{17} + (17 + 3\sqrt{17}) e^{\sqrt{17} x^{1201}})$$



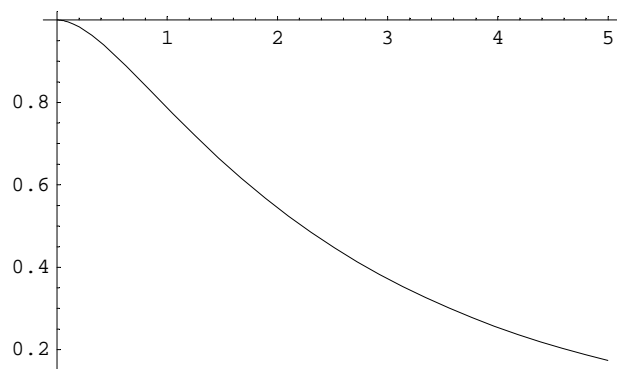
$$k1 = 3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{26} e^{-\frac{1}{2}(3+\sqrt{13})x^{1208}} (13 - 3\sqrt{13} + (13 + 3\sqrt{13}) e^{\sqrt{13}x^{1208}})$$



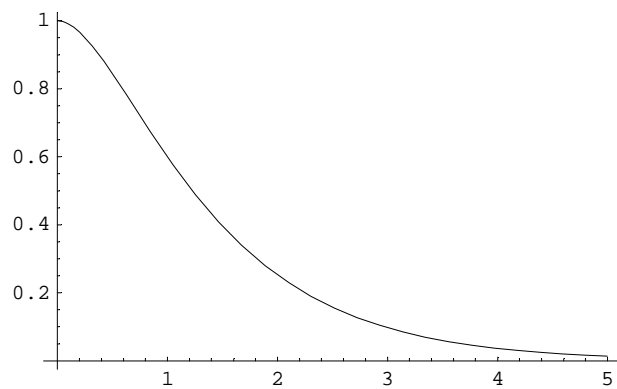
$$k1 = 3 \quad k2 = 0 \quad / \quad y[x] = 1$$



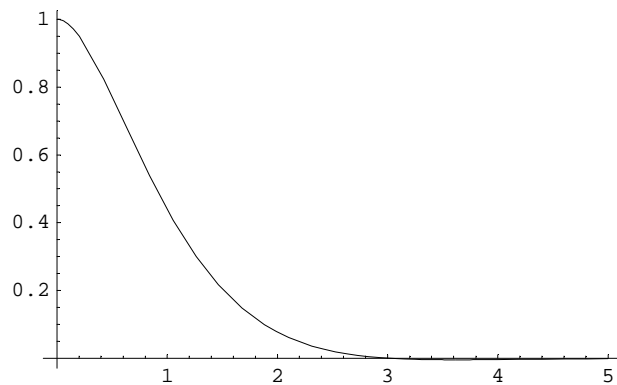
$$k1 = 3 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{10} e^{-\frac{1}{2}(3+\sqrt{5})x^{1222}} (5 - 3\sqrt{5} + (5 + 3\sqrt{5}) e^{\sqrt{5}x^{1222}})$$



$$k1 = 3 \quad k2 = 2 \quad / \quad y[x] = e^{-2x^{1229}} (-1 + 2 e^{x^{1229}})$$



$$k1 = 3 \quad k2 = 3 \quad / \quad y[x] = e^{-3 x^{1235/2}} \left(\cos\left[\frac{\sqrt{3} x^{1235}}{2}\right] + \sqrt{3} \sin\left[\frac{\sqrt{3} x^{1235}}{2}\right] \right)$$

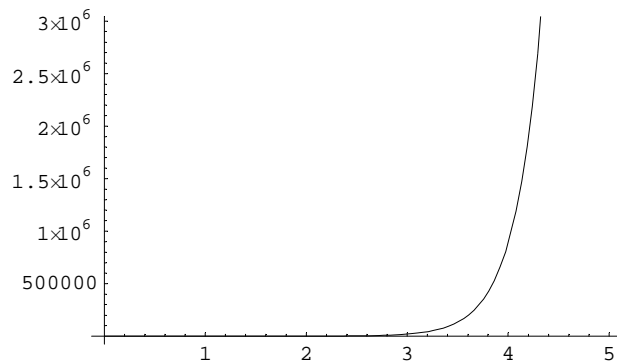


ii

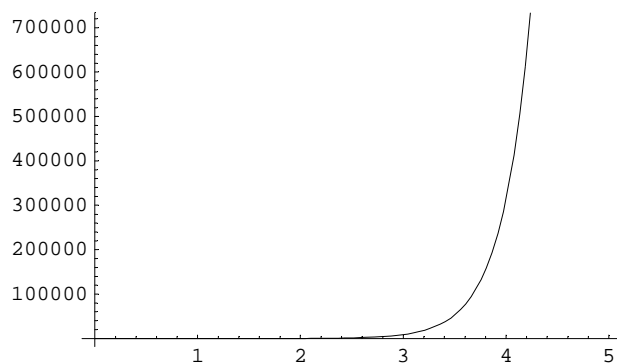
```
Remove["Global`*"];
m3[k1_,k2_,y0_,y1_] := Module[{x,y},
  solv =
  DSolve[{y'[x]+ k1 y'[x]+ k2 y[x]==1, y[0]==y0, y'[0]==y1},y,x];
  y = y/.solv[[1]];
  Print["k1 = ",k1," k2 = ",k2, " / y[x] = ",y[x]//Simplify];
  Plot[y[x],{x,0,5}]]];
```

```
Table[m3[k1,k2,1,0],{k1,-3,3},{k2,-3,3}];
```

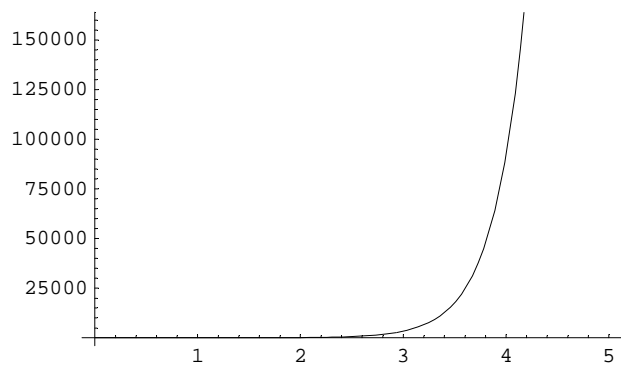
$$k1 = -3 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{21} e^{-\frac{1}{2}(-3+\sqrt{21})x^{1241}} (2(7+\sqrt{21}) - 2(-7+\sqrt{21}) e^{\sqrt{21}x^{1241}} - 7 e^{\frac{1}{2}(-3+\sqrt{21})x^{1241}})$$



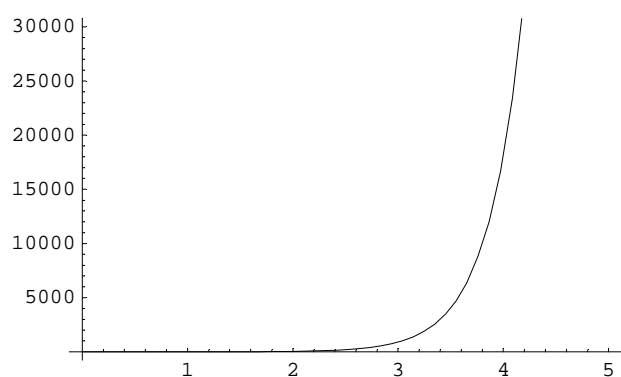
$$k1 = -3 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{68} e^{-\frac{1}{2}(-3+\sqrt{17})x^{1248}} (51+9\sqrt{17} + (51-9\sqrt{17}) e^{\sqrt{17}x^{1248}} - 34 e^{\frac{1}{2}(-3+\sqrt{17})x^{1248}})$$



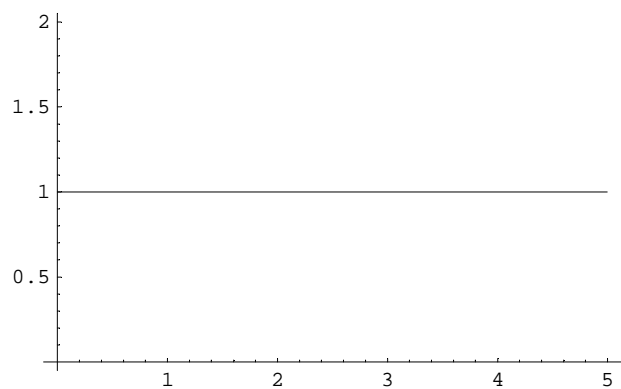
$$k1 = -3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{13} e^{-\frac{1}{2}(-3+\sqrt{13})x^{1255}} (13 + 3\sqrt{13} + (13 - 3\sqrt{13}) e^{\sqrt{13}x^{1255}} - 13 e^{\frac{1}{2}(-3+\sqrt{13})x^{1255}})$$



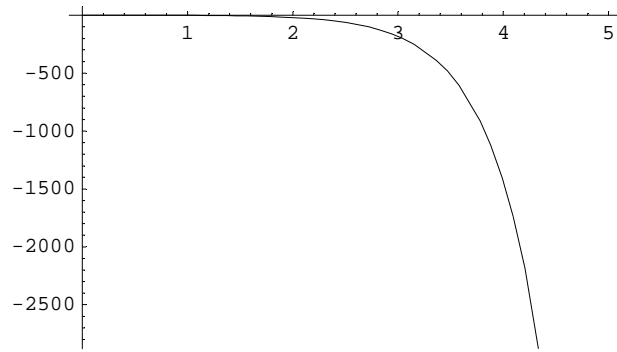
$$k1 = -3 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{9} (8 + e^{3x^{1262}} - 3x^{1262})$$



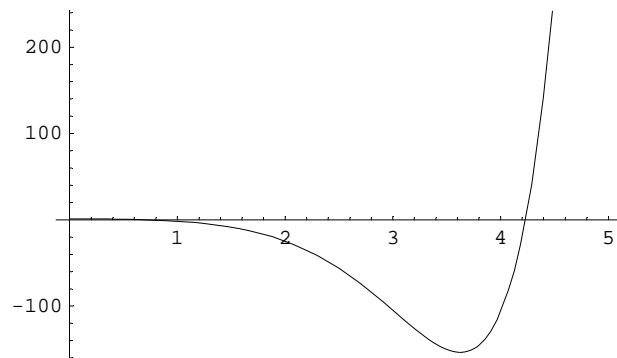
$$k1 = -3 \quad k2 = 1 \quad / \quad y[x] = 1$$



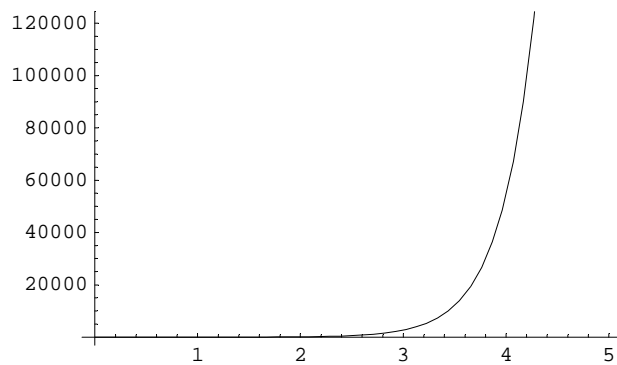
$$k1 = -3 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} + e^{x^{1276}} - \frac{e^{2x^{1276}}}{2}$$



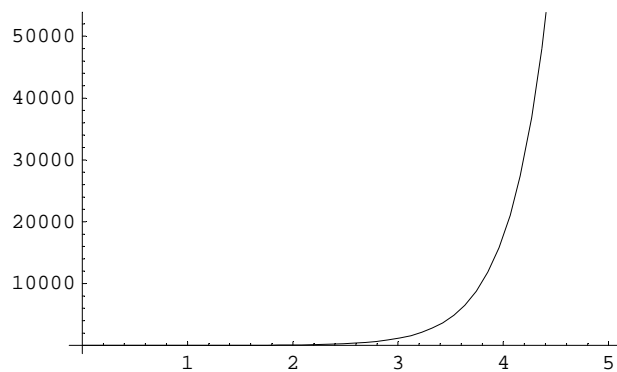
$$k1 = -3 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{3} \left(1 + 2 e^{3 x \sqrt{1282/2}} \cos\left[\frac{\sqrt{3} x \sqrt{1282}}{2}\right] - 2 \sqrt{3} e^{3 x \sqrt{1282/2}} \sin\left[\frac{\sqrt{3} x \sqrt{1282}}{2}\right] \right)$$



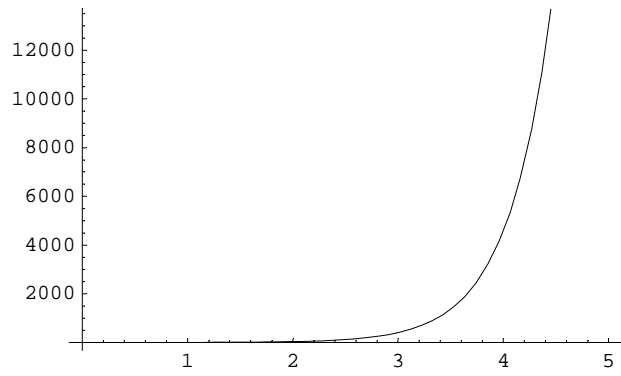
$$k1 = -2 \quad k2 = -3 \quad / \quad y[x] = -\frac{1}{3} + e^{-x \sqrt{1288}} + \frac{e^{3 x \sqrt{1288}}}{3}$$



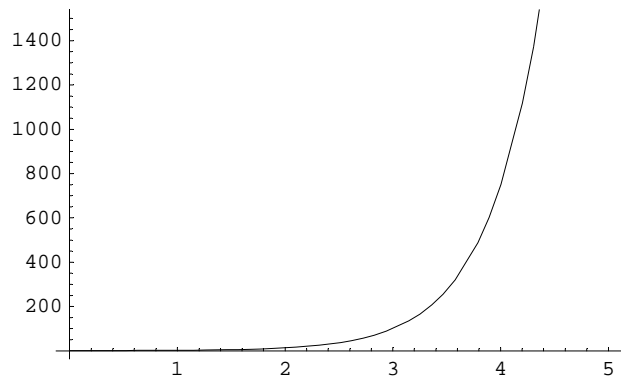
$$k1 = -2 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{4} e^{-\sqrt{3} x \sqrt{1294}} \left((3 + \sqrt{3}) e^{x \sqrt{1294}} - 2 e^{\sqrt{3} x \sqrt{1294}} - (-3 + \sqrt{3}) e^{x \sqrt{1294} + 2 \sqrt{3} x \sqrt{1294}} \right)$$



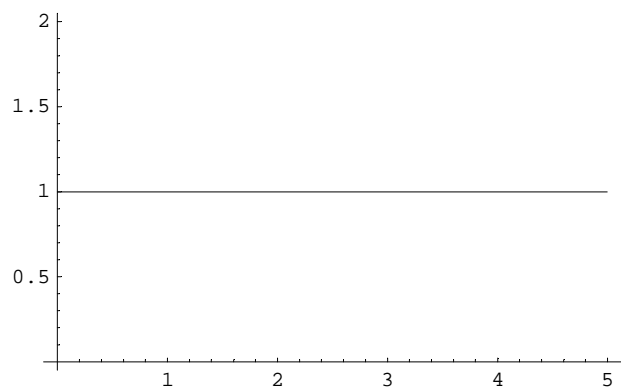
$$k1 = -2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{2} e^{-\sqrt{2} x \sqrt{1301}} \left((2 + \sqrt{2}) e^{x \sqrt{1301}} - 2 e^{\sqrt{2} x \sqrt{1301}} - (-2 + \sqrt{2}) e^{x \sqrt{1301} + 2 \sqrt{2} x \sqrt{1301}} \right)$$



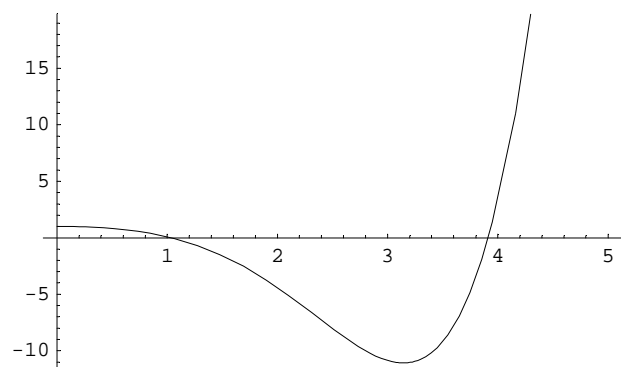
$$k1 = -2 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{4} (3 + e^{2x^{1308}} - 2x^{1308})$$



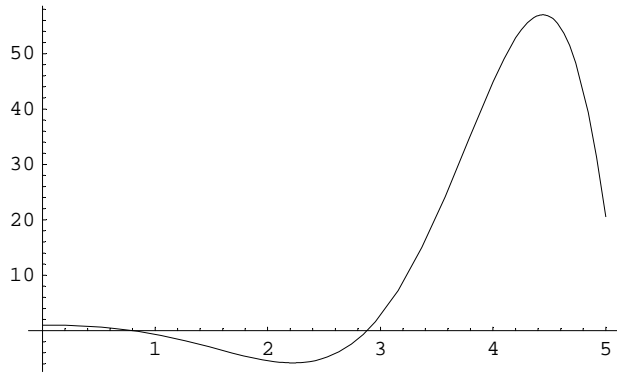
$$k1 = -2 \quad k2 = 1 \quad / \quad y[x] = 1$$



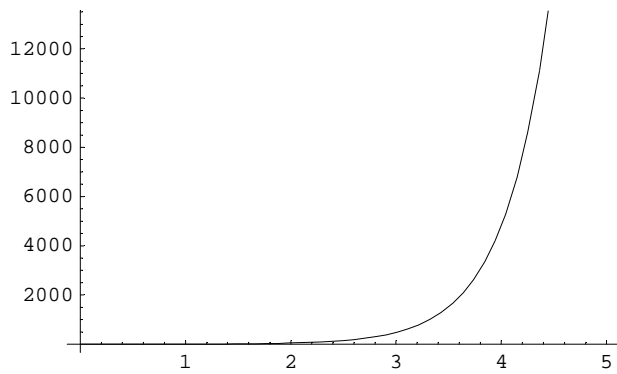
$$k1 = -2 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} (1 + e^{x^{1322}} \cos[x^{1322}] - e^{x^{1322}} \sin[x^{1322}])$$



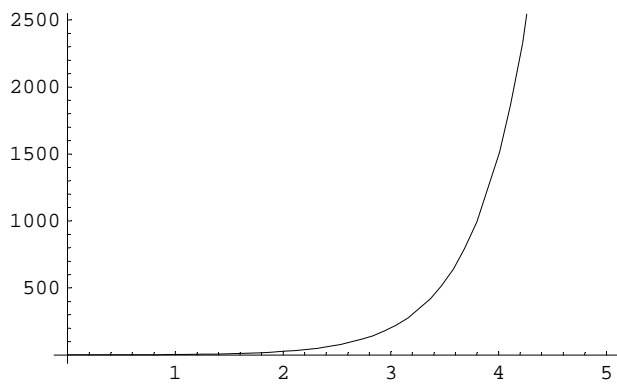
$$k1 = -2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{3} (1 + 2 e^{x^{1328}} \cos[\sqrt{2} x^{1328}] - \sqrt{2} e^{x^{1328}} \sin[\sqrt{2} x^{1328}])$$



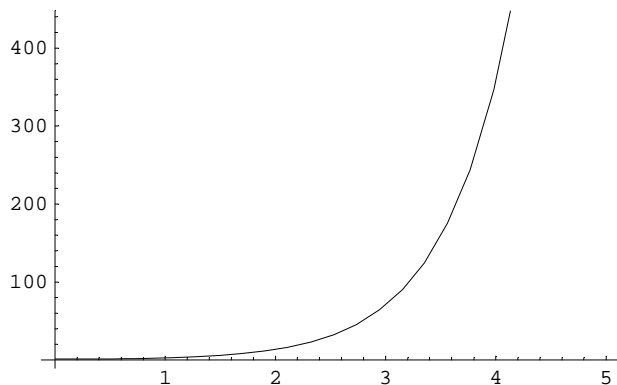
$k_1 = -1 \quad k_2 = -3 \quad / \quad y[x] = \frac{1}{39} e^{-\frac{1}{2}(-1+\sqrt{13})x} (2(13+\sqrt{13}) - 2(-13+\sqrt{13})e^{\sqrt{13}x} - 13e^{\frac{1}{2}(-1+\sqrt{13})x})$



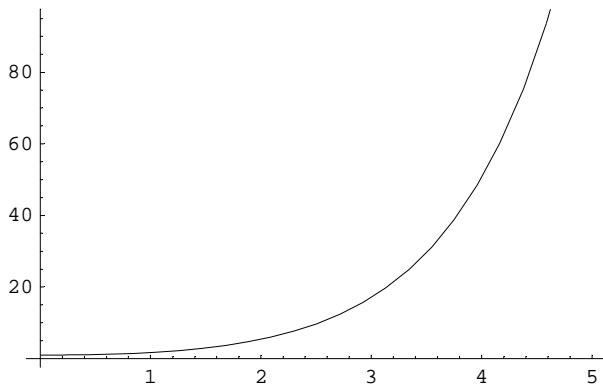
$k_1 = -1 \quad k_2 = -2 \quad / \quad y[x] = -\frac{1}{2} + e^{-x} + \frac{e^{2x}}{2}$



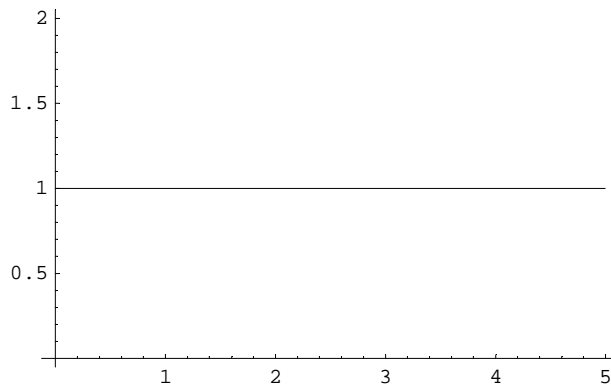
$k_1 = -1 \quad k_2 = -1 \quad / \quad y[x] = \frac{1}{5} e^{-\frac{1}{2}(-1+\sqrt{5})x} (5+\sqrt{5} - (-5+\sqrt{5})e^{\sqrt{5}x} - 5e^{\frac{1}{2}(-1+\sqrt{5})x})$



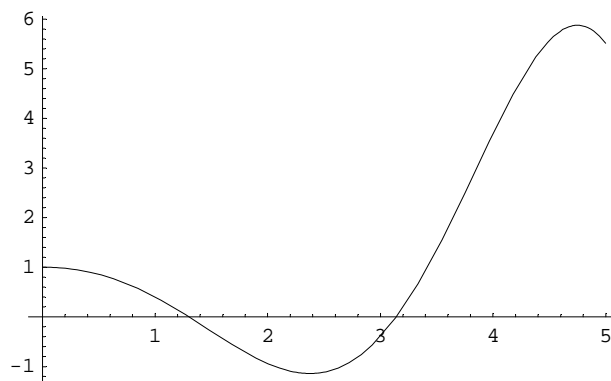
$$k1 = -1 \quad k2 = 0 \quad / \quad y[x] = e^{x^{1354}} - x^{1354}$$



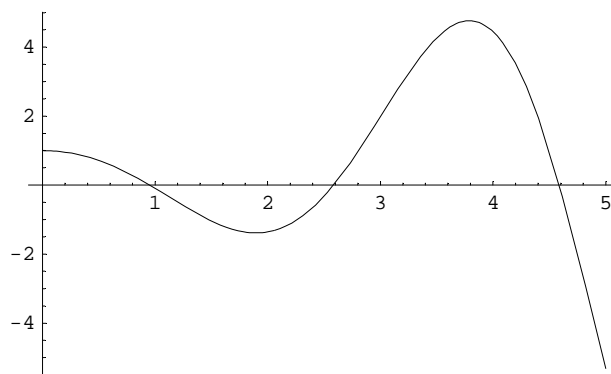
$$k1 = -1 \quad k2 = 1 \quad / \quad y[x] = 1$$



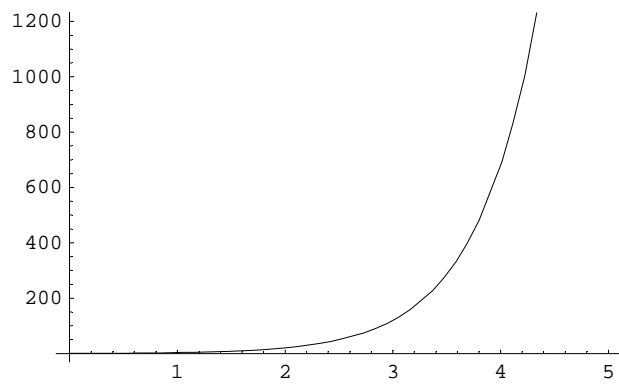
$$k1 = -1 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{14} \left(7 + 7 e^{x^{1368/2}} \cos\left[\frac{\sqrt{7} x^{1368}}{2}\right] - \sqrt{7} e^{x^{1368/2}} \sin\left[\frac{\sqrt{7} x^{1368}}{2}\right] \right)$$



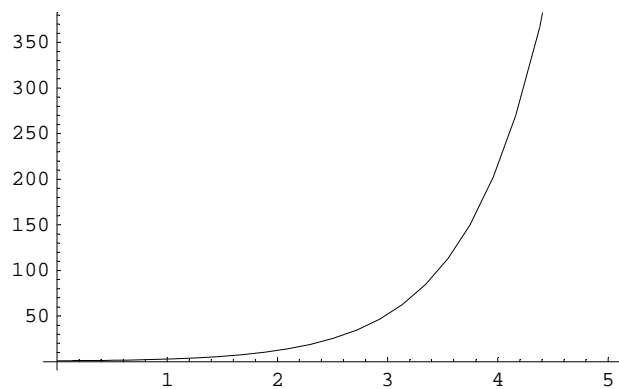
$$k1 = -1 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{33} \left(11 + 22 e^{x^{1374/2}} \cos\left[\frac{\sqrt{11} x^{1374}}{2}\right] - 2\sqrt{11} e^{x^{1374/2}} \sin\left[\frac{\sqrt{11} x^{1374}}{2}\right] \right)$$



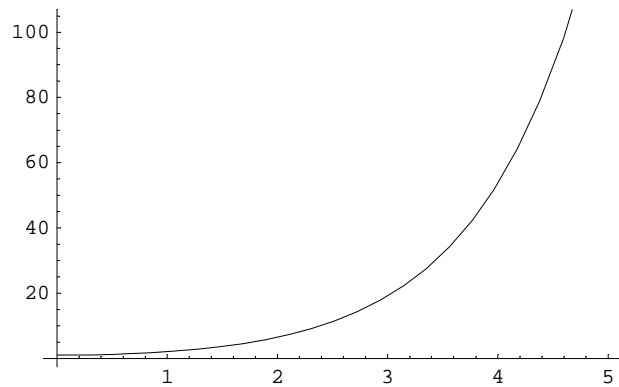
$$k1 = 0 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{3} \left(-1 + 2 e^{-\sqrt{3} x} + 2 e^{\sqrt{3} x} \right)$$



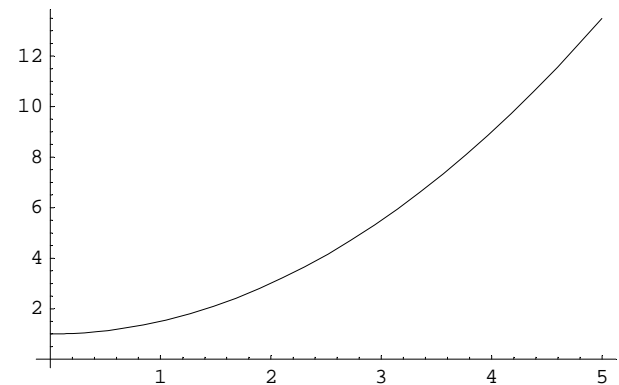
$$k1 = 0 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{4} \left(-2 + 3 e^{-\sqrt{2} x} + 3 e^{\sqrt{2} x} \right)$$



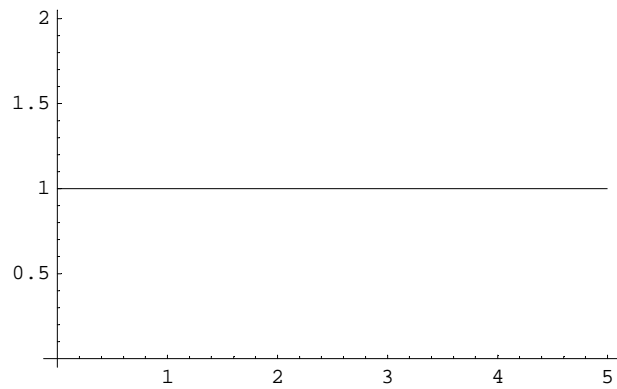
$$k1 = 0 \quad k2 = -1 \quad / \quad y[x] = -1 + e^{-x} + e^x$$



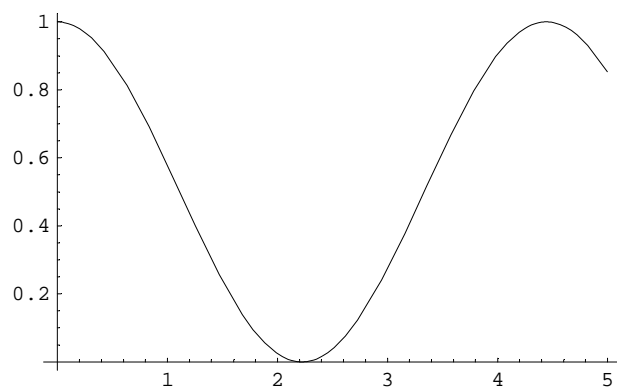
$$k1 = 0 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{2} (2 + x^2)$$



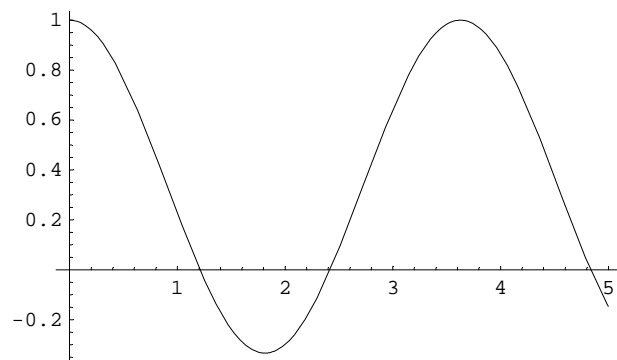
$$k1 = 0 \quad k2 = 1 \quad / \quad y[x] = 1$$



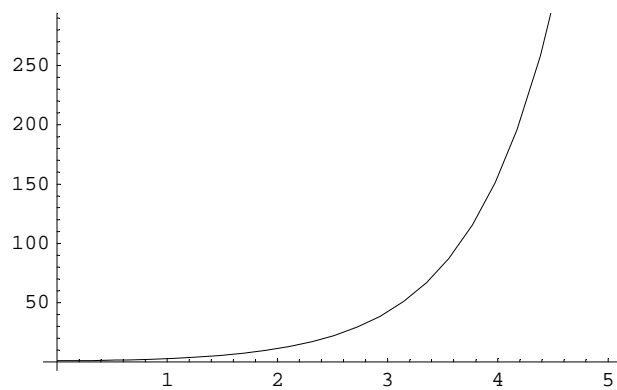
$$k1 = 0 \quad k2 = 2 \quad / \quad y[x] = \cos\left[\frac{x\sqrt{1410}}{\sqrt{2}}\right]^2$$



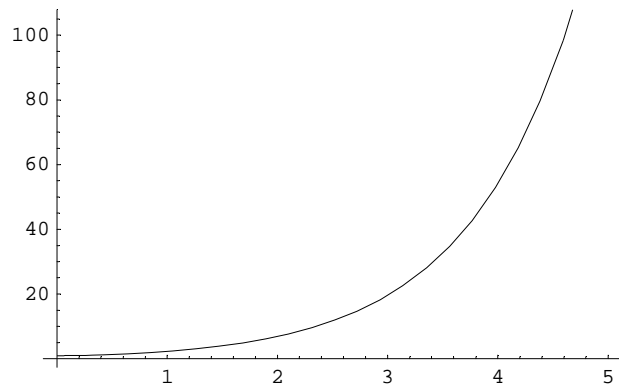
$$k1 = 0 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{3} (1 + 2 \cos[\sqrt{3} x\sqrt{1416}])$$



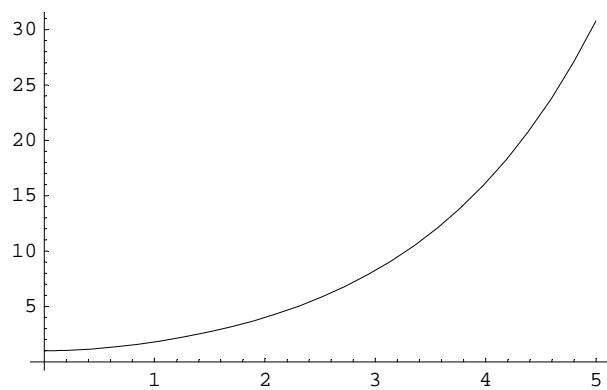
$$k1 = 1 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{39} e^{-\frac{1}{2}(1+\sqrt{13})x\sqrt{1422}} \left(26 - 2\sqrt{13} + 2(13 + \sqrt{13}) e^{\sqrt{13}x\sqrt{1422}} - 13 e^{\frac{1}{2}(1+\sqrt{13})x\sqrt{1422}} \right)$$



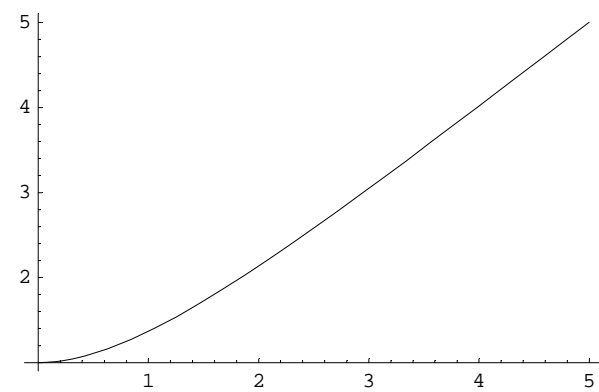
$$k1 = 1 \quad k2 = -2 \quad / \quad y[x] = -\frac{1}{2} + \frac{e^{-2x} + e^{x^2}}{2}$$



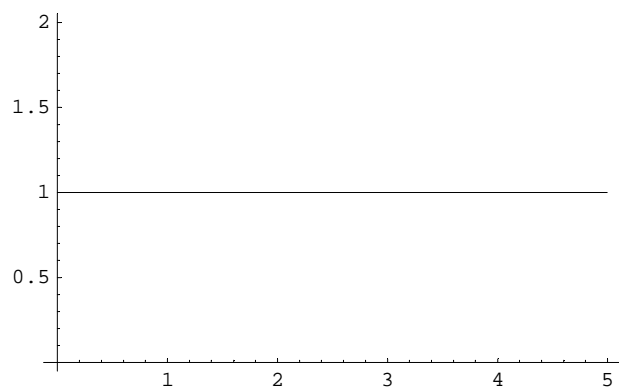
$$k1 = 1 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{5} e^{-\frac{1}{2}(1+\sqrt{5})x} (5 - \sqrt{5} + (5 + \sqrt{5}) e^{\sqrt{5}x} - 5 e^{\frac{1}{2}(1+\sqrt{5})x})$$



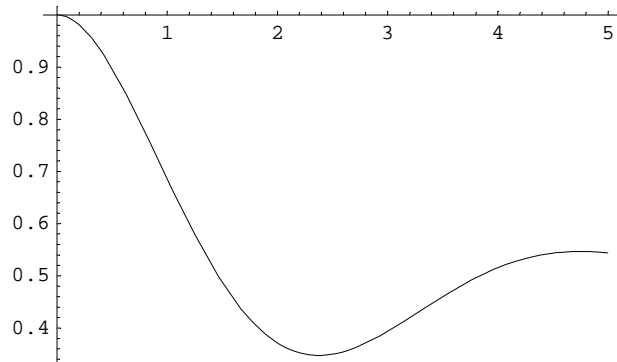
$$k1 = 1 \quad k2 = 0 \quad / \quad y[x] = e^{-x} + x$$



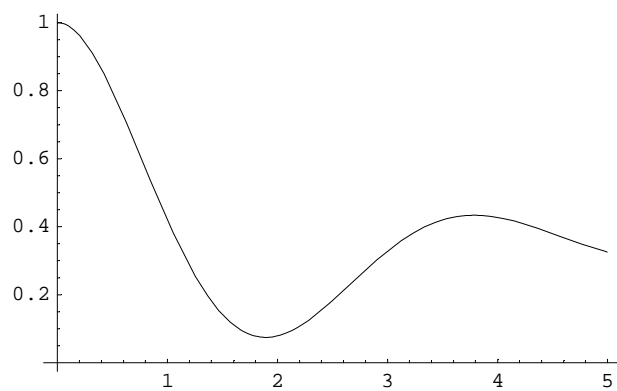
$$k1 = 1 \quad k2 = 1 \quad / \quad y[x] = 1$$



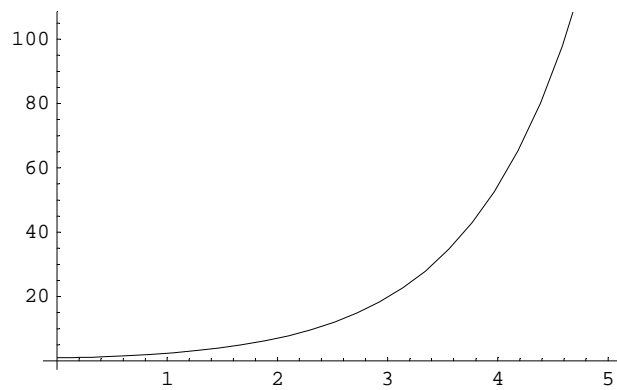
$$k1 = 1 \quad k2 = 2 \quad / \quad Y[x] = \frac{1}{14} \left(7 + 7 e^{-x\$1455/2} \text{Cos}\left[\frac{\sqrt{7} x\$1455}{2}\right] + \sqrt{7} e^{-x\$1455/2} \text{Sin}\left[\frac{\sqrt{7} x\$1455}{2}\right] \right)$$



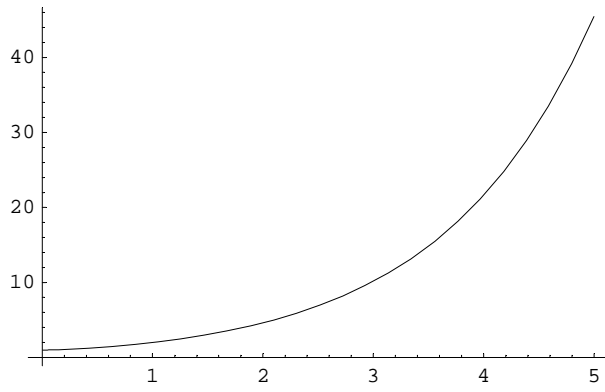
$$k1 = 1 \quad k2 = 3 \quad / \quad Y[x] = \frac{1}{33} \left(11 + 22 e^{-x\$1461/2} \text{Cos}\left[\frac{\sqrt{11} x\$1461}{2}\right] + 2\sqrt{11} e^{-x\$1461/2} \text{Sin}\left[\frac{\sqrt{11} x\$1461}{2}\right] \right)$$



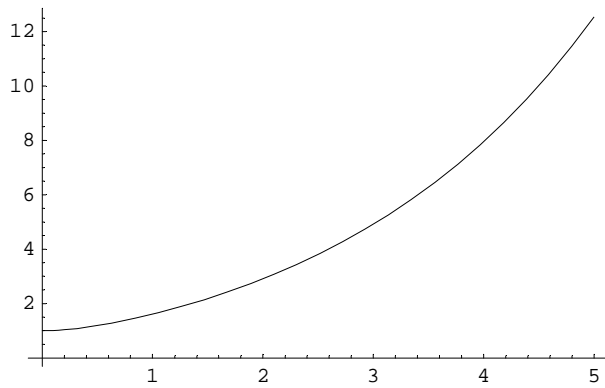
$$k1 = 2 \quad k2 = -3 \quad / \quad Y[x] = -\frac{1}{3} + \frac{e^{-3x\$1467}}{3} + e^{x\$1467}$$



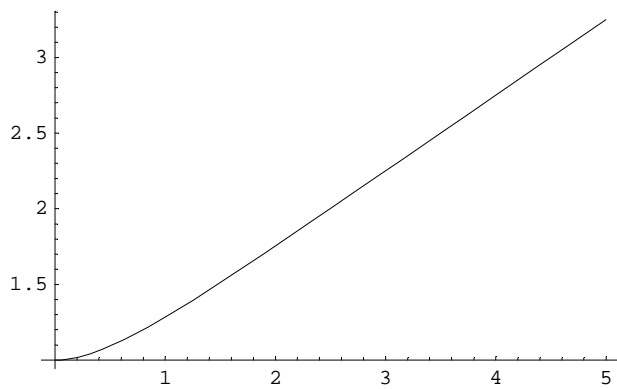
$$k1 = 2 \quad k2 = -2 \quad / \quad Y[x] = \frac{1}{4} e^{-(1+\sqrt{3})x\$1473} (3 - \sqrt{3} + (3 + \sqrt{3}) e^{2\sqrt{3}x\$1473} - 2 e^{(1+\sqrt{3})x\$1473})$$



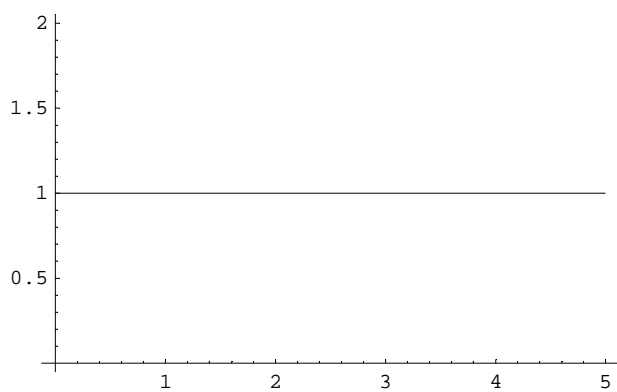
$$k1 = 2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{2} e^{-(1+\sqrt{2})x} (2 - \sqrt{2} + (2 + \sqrt{2}) e^{2\sqrt{2}x} - 2 e^{(1+\sqrt{2})x})$$



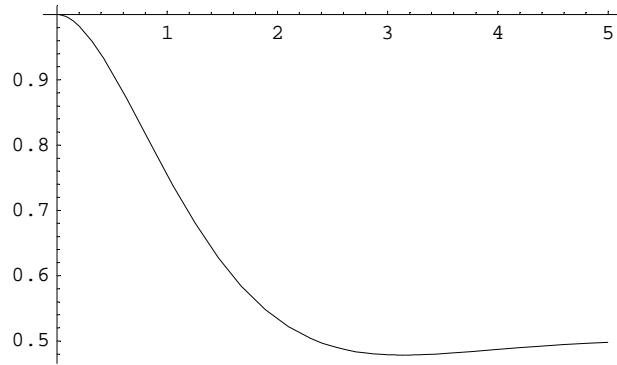
$$k1 = 2 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{4} (3 + e^{-2x} + 2x)$$



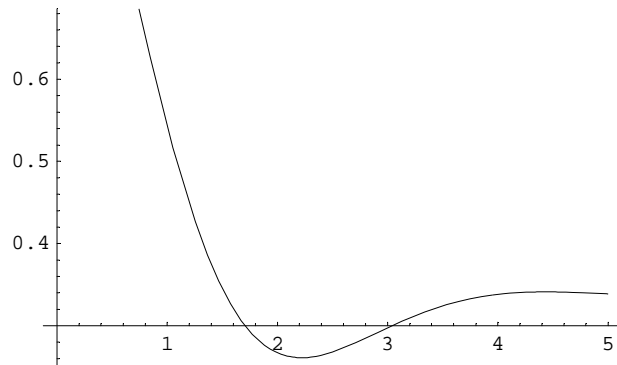
$$k1 = 2 \quad k2 = 1 \quad / \quad y[x] = 1$$



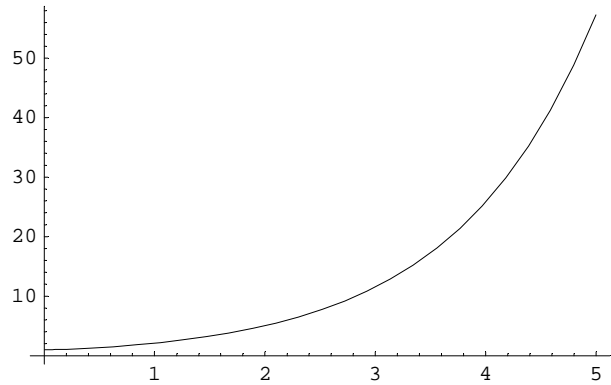
$$k1 = 2 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} e^{-x} (e^x + \cos[x] + \sin[x])$$



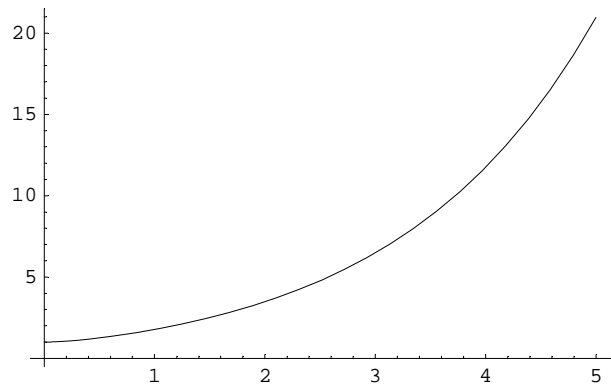
$$k1 = 2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{3} e^{-x^{1507}} (e^{x^{1507}} + 2 \cos[\sqrt{2} x^{1507}] + \sqrt{2} \sin[\sqrt{2} x^{1507}])$$



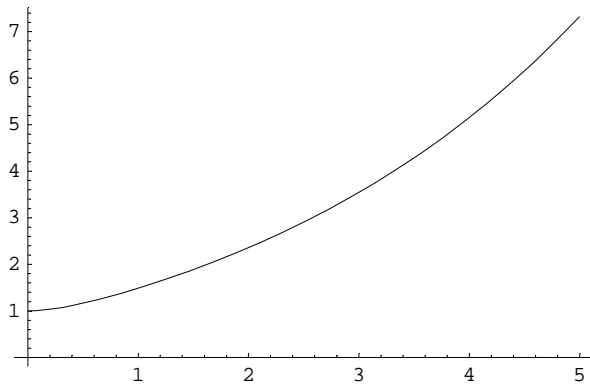
$$k1 = 3 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{21} e^{-\frac{1}{2} (3+\sqrt{21}) x^{1513}} (-2 (-7 + \sqrt{21}) + 2 (7 + \sqrt{21}) e^{\sqrt{21} x^{1513}} - 7 e^{\frac{1}{2} (3+\sqrt{21}) x^{1513}})$$



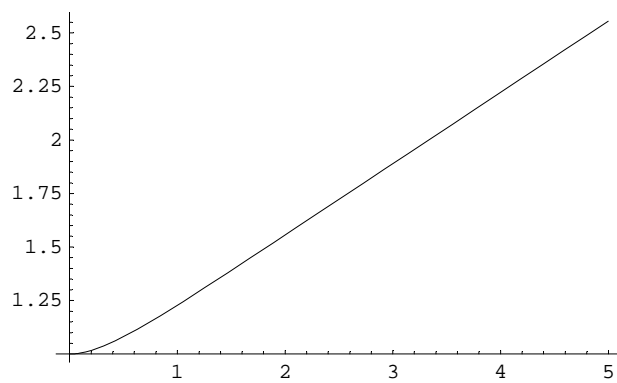
$$k1 = 3 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{68} e^{-\frac{1}{2} (3+\sqrt{17}) x^{1520}} (51 - 9 \sqrt{17} + (51 + 9 \sqrt{17}) e^{\sqrt{17} x^{1520}} - 34 e^{\frac{1}{2} (3+\sqrt{17}) x^{1520}})$$



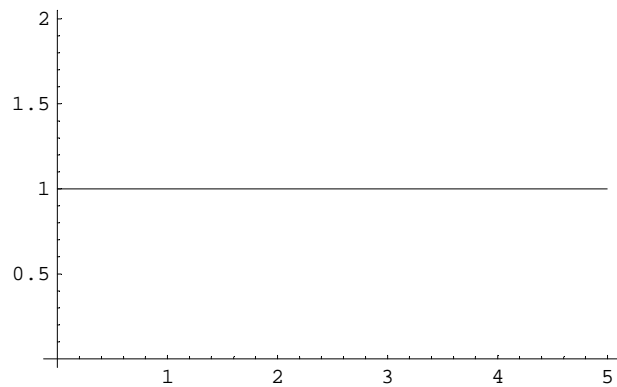
$$k1 = 3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{13} e^{-\frac{1}{2}(3+\sqrt{13})x} (13 - 3\sqrt{13} + (13 + 3\sqrt{13}) e^{\sqrt{13}x} - 13 e^{\frac{1}{2}(3+\sqrt{13})x})$$



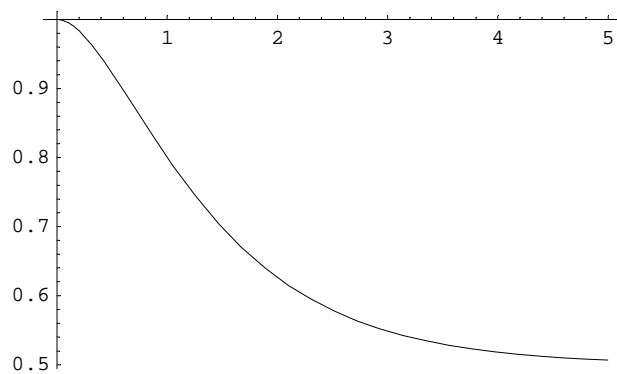
$$k1 = 3 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{9} (8 + e^{-3x} + 3x)$$



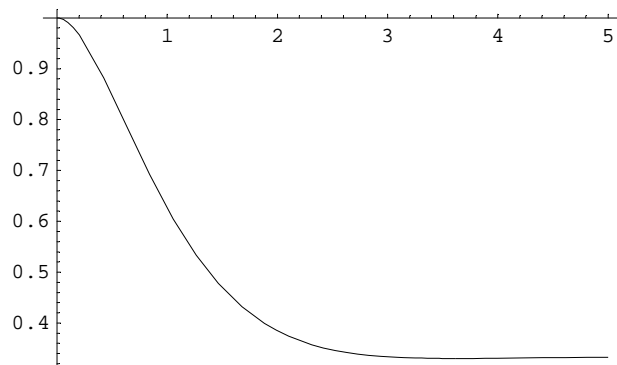
$$k1 = 3 \quad k2 = 1 \quad / \quad y[x] = 1$$



$$k1 = 3 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} - \frac{e^{-2x}}{2} + e^{-x}$$



$$k1 = 3 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{3} e^{-3x^{1554/2}} \left(e^{3x^{1554/2}} + 2 \cos\left[\frac{\sqrt{3} x^{1554}}{2}\right] + 2\sqrt{3} \sin\left[\frac{\sqrt{3} x^{1554}}{2}\right] \right)$$

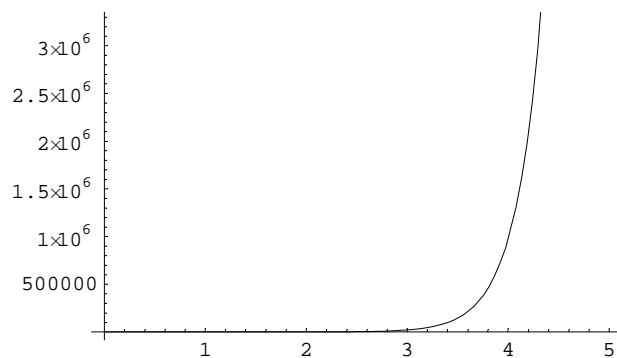


iii

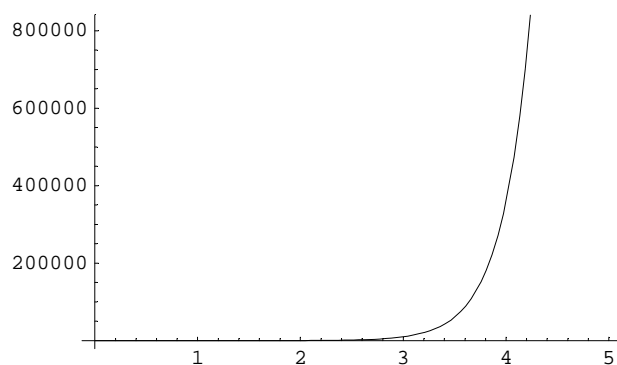
```
Remove["Global`*"];
m4[k1_,k2_,y0_,y1_] := Module[{x,y},
  solv =
  DSolve[{y'[x]+ k1 y'[x]+ k2 y[x]=1+ x+ x^2, y[0]=y0, y'[0]=y1},y,x];
  y = y/.solv[[1]];
  Print["k1 = ",k1," k2 = ",k2, " / y[x] = ",y[x]//Simplify];
  Plot[y[x],{x,0,5}]]];
```

```
Table[m4[k1,k2,1,0],{k1,-3,3},{k2,-3,3}];
```

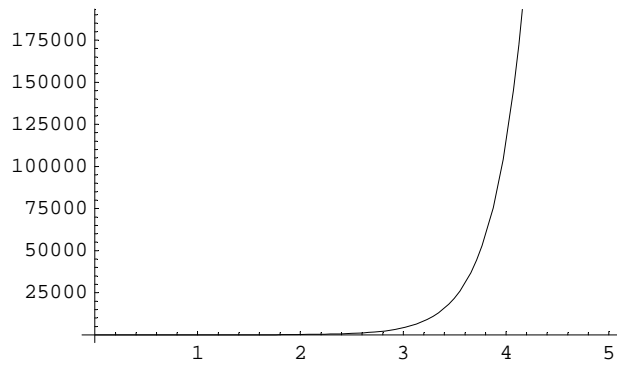
$$k1 = -3 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{126} e^{-\frac{1}{2}(-3+\sqrt{21})x^{1560}} \left((119 + 19\sqrt{21} + (119 - 19\sqrt{21}) e^{\sqrt{21}x^{1560}} - 14 e^{\frac{1}{2}(-3+\sqrt{21})x^{1560}} (8 - 3x^{1560} + 3x^{1560}^2)) \right)$$



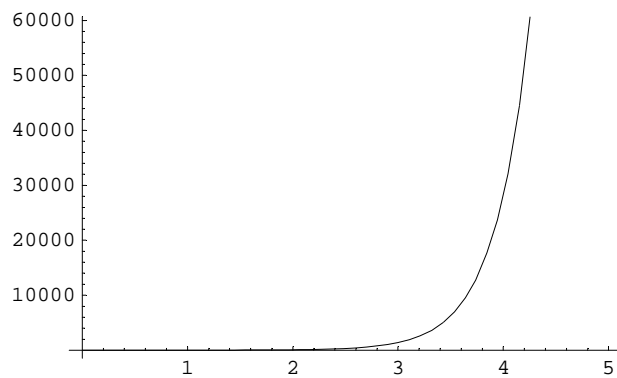
$$k1 = -3 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{68} e^{-\frac{1}{2}(-3+\sqrt{17})x^{1567}} \left((119 + 25\sqrt{17} + (119 - 25\sqrt{17}) e^{\sqrt{17}x^{1567}} - 34 e^{\frac{1}{2}(-3+\sqrt{17})x^{1567}} (5 - 2x^{1567} + x^{1567}^2)) \right)$$



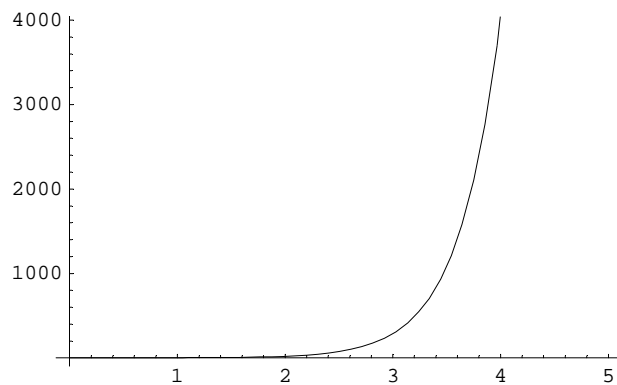
$$k1 = -3 \quad k2 = -1 / \quad y[x] = \frac{1}{26} e^{-\frac{1}{2}(-3+\sqrt{13})x^{1574}} \\ (247 + 67\sqrt{13} + (247 - 67\sqrt{13}) e^{\sqrt{13}x^{1574}} - 26 e^{\frac{1}{2}(-3+\sqrt{13})x^{1574}} (18 - 5x^{1574} + x^{1574^2}))$$



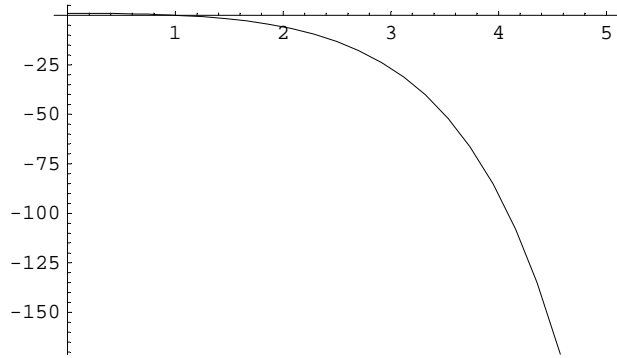
$$k1 = -3 \quad k2 = 0 / \quad y[x] = \frac{1}{162} (134 + 28 e^{3x^{1581}} - 84 x^{1581} - 45 x^{1581^2} - 18 x^{1581^3})$$



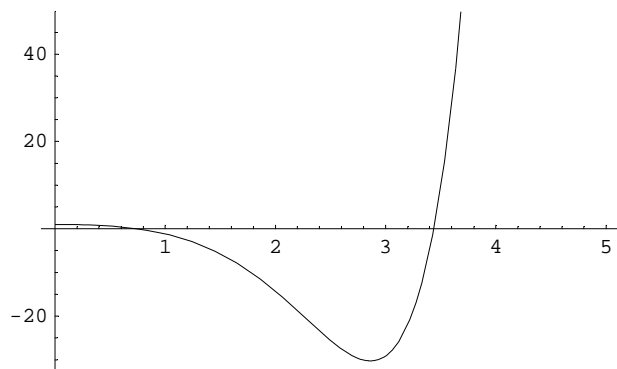
$$k1 = -3 \quad k2 = 1 / \quad y[x] = \\ \frac{1}{10} e^{-\frac{1}{2}(-3+\sqrt{5})x^{1590}} (-95 - 43\sqrt{5} + (-95 + 43\sqrt{5}) e^{\sqrt{5}x^{1590}} + 10 e^{\frac{1}{2}(-3+\sqrt{5})x^{1590}} (20 + 7x^{1590} + x^{1590^2}))$$



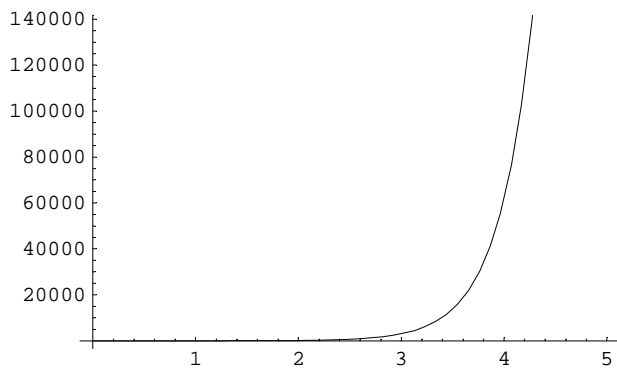
$$k1 = -3 \quad k2 = 2 / \quad y[x] = \frac{1}{2} (6 - 4 e^{x^{1597}} + 4 x^{1597} + x^{1597^2})$$



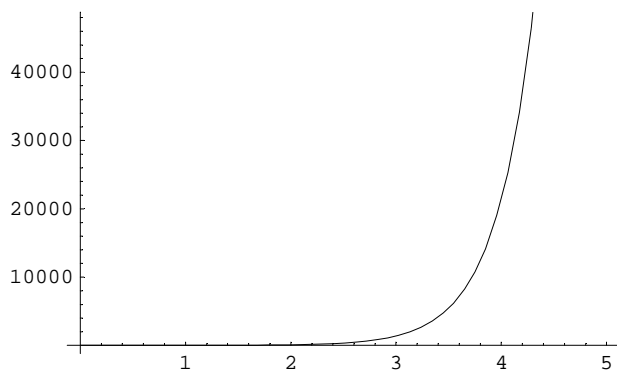
$$k1 = -3 \quad k2 = 3 / \quad y[x] = \frac{1}{9} \left(10 + 9 x^{1603} + 3 x^{1603^2} - e^{3 x^{1603/2}} \cos\left[\frac{\sqrt{3} x^{1603}}{2}\right] - 5 \sqrt{3} e^{3 x^{1603/2}} \sin\left[\frac{\sqrt{3} x^{1603}}{2}\right] \right)$$



$$k1 = -2 \quad k2 = -3 / \quad y[x] = \frac{1}{108} e^{-x^{1609}} (135 + 41 e^{4 x^{1609}} - 4 e^{x^{1609}} (17 - 3 x^{1609} + 9 x^{1609^2}))$$

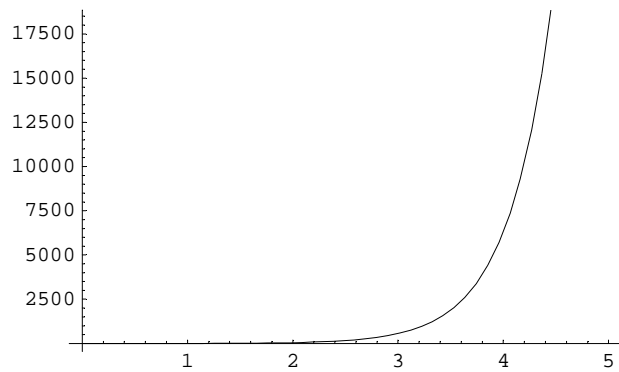


$$k1 = -2 \quad k2 = -2 / \quad y[x] = \frac{1}{4} e^{-\sqrt{3} x^{1615}} \left((5 + 2\sqrt{3}) e^{x^{1615}} + (5 - 2\sqrt{3}) e^{x^{1615+2\sqrt{3} x^{1615}}} - 2 e^{\sqrt{3} x^{1615}} (3 - x^{1615} + x^{1615^2}) \right)$$

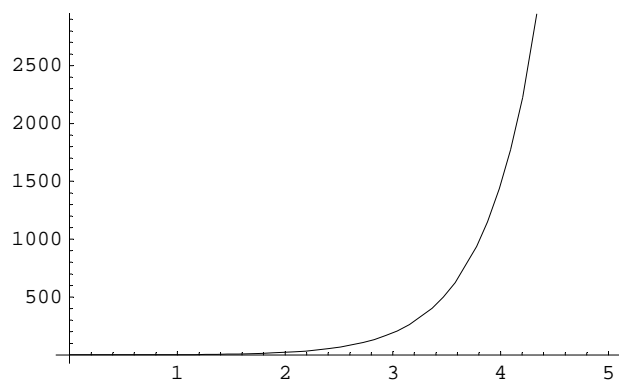


$$k1 = -2 \quad k2 = -1 \quad / \quad y[x] =$$

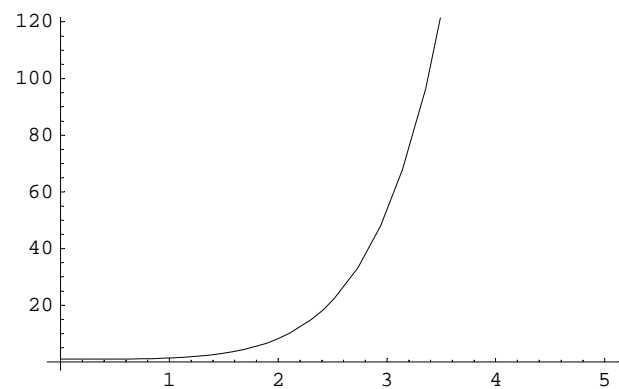
$$\frac{1}{4} e^{-\sqrt{2} x^{1622}} \left((20 + 13\sqrt{2}) e^{x^{1622}} + (20 - 13\sqrt{2}) e^{x^{1622} + 2\sqrt{2} x^{1622}} - 4 e^{\sqrt{2} x^{1622}} (9 - 3 x^{1622} + x^{1622}^2) \right)$$



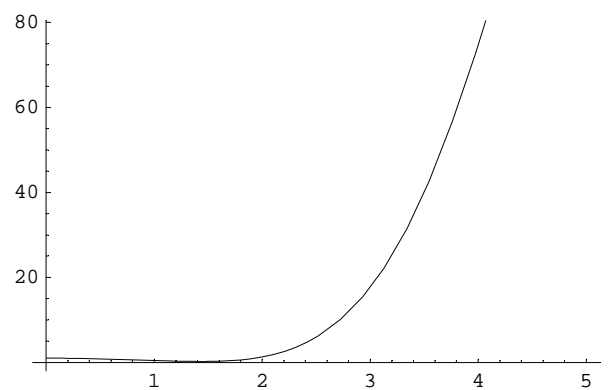
$$k1 = -2 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{6} (3 + 3 e^{2 x^{1629}} - 6 x^{1629} - 3 x^{1629}^2 - x^{1629}^3)$$



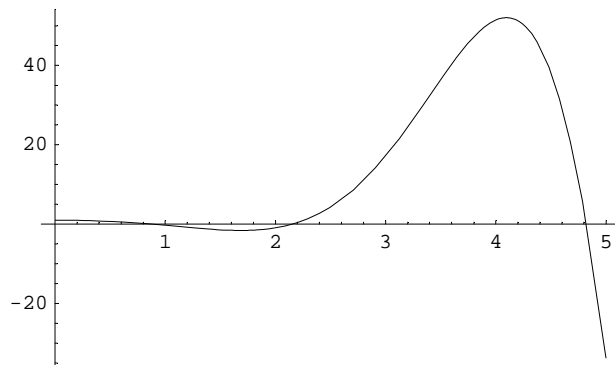
$$k1 = -2 \quad k2 = 1 \quad / \quad y[x] = 9 + 5 x^{1638} + x^{1638}^2 + e^{x^{1638}} (-8 + 3 x^{1638})$$



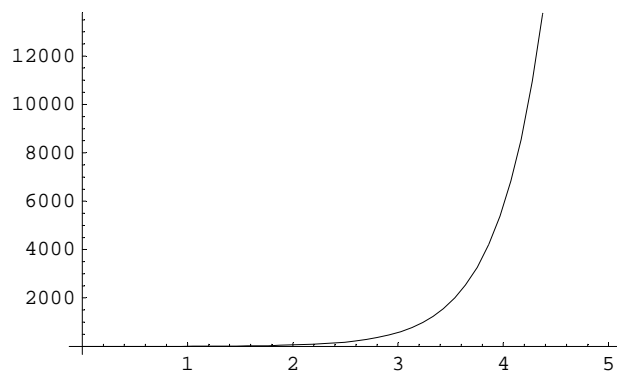
$$k1 = -2 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} (3 + 3 x^{1644} + x^{1644}^2 - e^{x^{1644}} \cos[x^{1644}] - 2 e^{x^{1644}} \sin[x^{1644}])$$



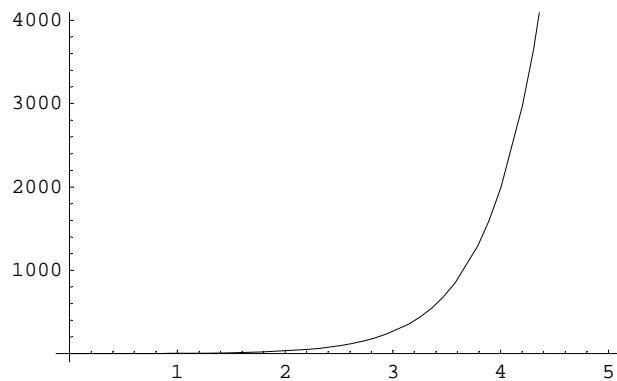
$$k1 = -2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{54} (34 + 42 x^{1650} + 18 x^{1650^2} + 20 e^{x^{1650}} \cos[\sqrt{2} x^{1650}] - 31 \sqrt{2} e^{x^{1650}} \sin[\sqrt{2} x^{1650}])$$



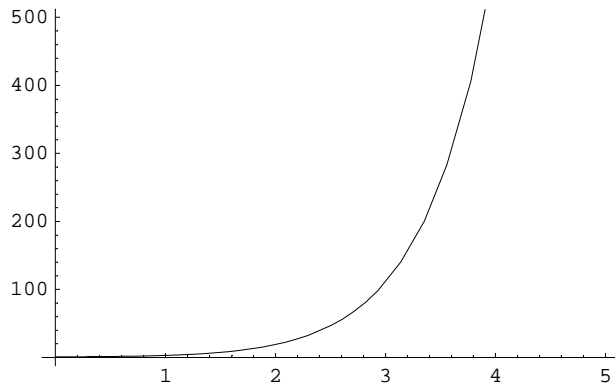
$$k1 = -1 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{702} e^{-\frac{1}{2}(-1+\sqrt{13})x^{1656}} (533 + 35\sqrt{13} + (533 - 35\sqrt{13}) e^{\sqrt{13}x^{1656}} - 26 e^{\frac{1}{2}(-1+\sqrt{13})x^{1656}} (14 + 3x^{1656} + 9x^{1656^2}))$$



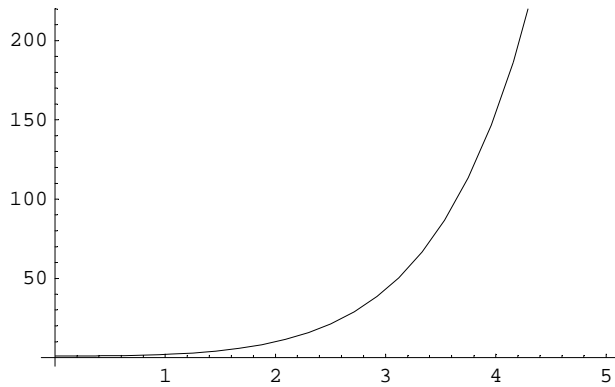
$$k1 = -1 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{6} e^{-x^{1663}} (8 + 4 e^{3x^{1663}} - 3 e^{x^{1663}} (2 + x^{1663^2}))$$



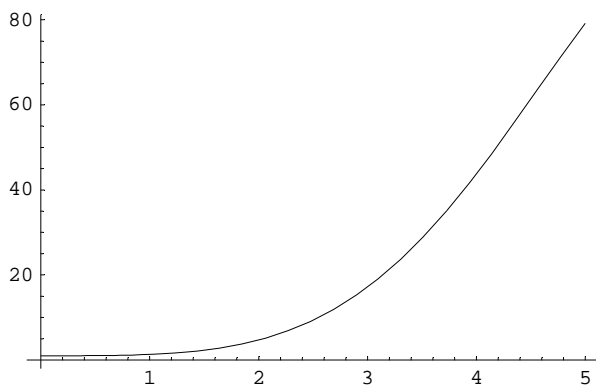
$$k1 = -1 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{10} e^{-\frac{1}{2}(-1+\sqrt{5})x^{1669}} (25 + 7\sqrt{5} + (25 - 7\sqrt{5}) e^{\sqrt{5}x^{1669}} - 10 e^{\frac{1}{2}(-1+\sqrt{5})x^{1669}} (4 - x^{1669} + x^{1669^2}))$$



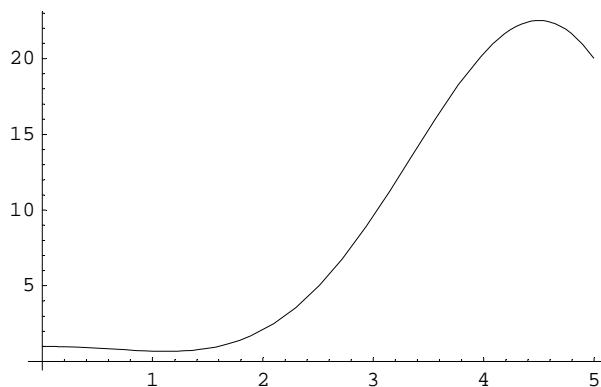
$$k1 = -1 \quad k2 = 0 / \quad y[x] = -3 + 4 e^{x^{1676}} - 4 x^{1676} - \frac{3 x^{1676}^2}{2} - \frac{x^{1676}^3}{3}$$



$$k1 = -1 \quad k2 = 1 / \quad y[x] = 2 + 3 x^{1685} + x^{1685}^2 - e^{x^{1685/2}} \cos\left[\frac{\sqrt{3} x^{1685}}{2}\right] - \frac{5 e^{x^{1685/2}} \sin\left[\frac{\sqrt{3} x^{1685}}{2}\right]}{\sqrt{3}}$$

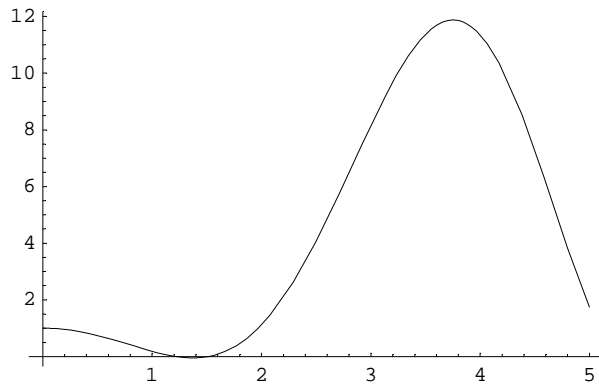


$$k1 = -1 \quad k2 = 2 / \quad y[x] = \frac{1}{14} \left(7 (1 + x^{1691})^2 + 7 e^{x^{1691/2}} \cos\left[\frac{\sqrt{7} x^{1691}}{2}\right] - 5 \sqrt{7} e^{x^{1691/2}} \sin\left[\frac{\sqrt{7} x^{1691}}{2}\right] \right)$$



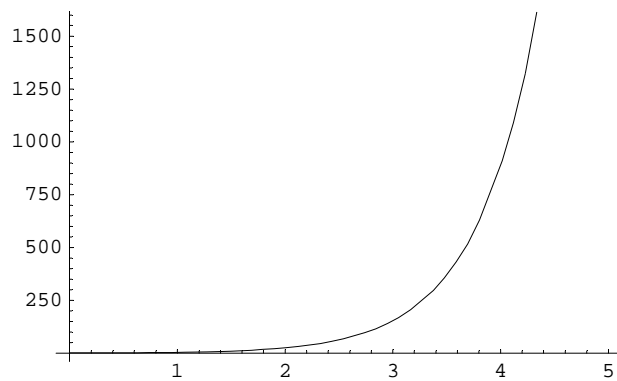
$$k1 = -1 \quad k2 = 3 \quad / \quad y[x] =$$

$$\frac{1}{297} \left(88 + 165 x^{1697} + 99 x^{1697^2} + 209 e^{x^{1697/2}} \cos\left[\frac{\sqrt{11} x^{1697}}{2}\right] - 49 \sqrt{11} e^{x^{1697/2}} \sin\left[\frac{\sqrt{11} x^{1697}}{2}\right] \right)$$



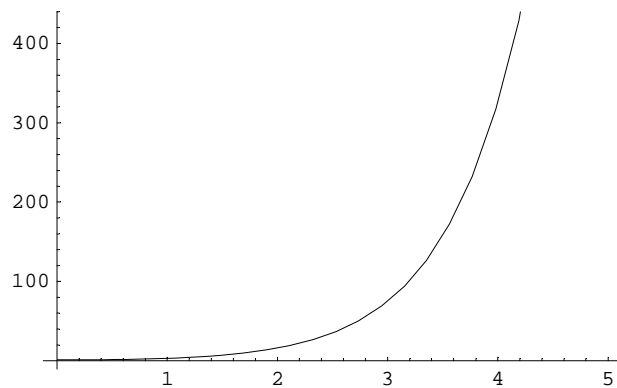
$$k1 = 0 \quad k2 = -3 \quad / \quad y[x] =$$

$$\frac{1}{18} e^{-\sqrt{3} x^{1703}} \left(14 - \sqrt{3} + (14 + \sqrt{3}) e^{2\sqrt{3} x^{1703}} - 2 e^{\sqrt{3} x^{1703}} (5 + 3 x^{1703} + 3 x^{1703^2}) \right)$$

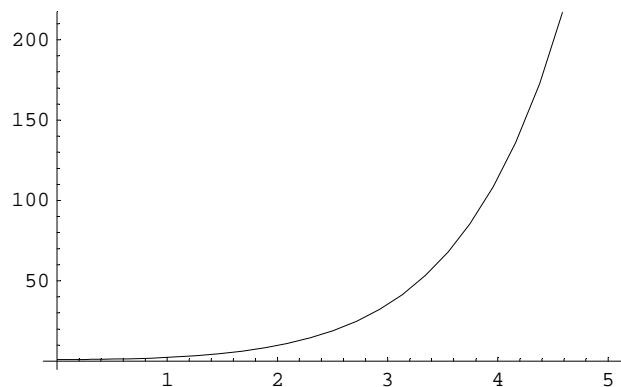


$$k1 = 0 \quad k2 = -2 \quad / \quad y[x] =$$

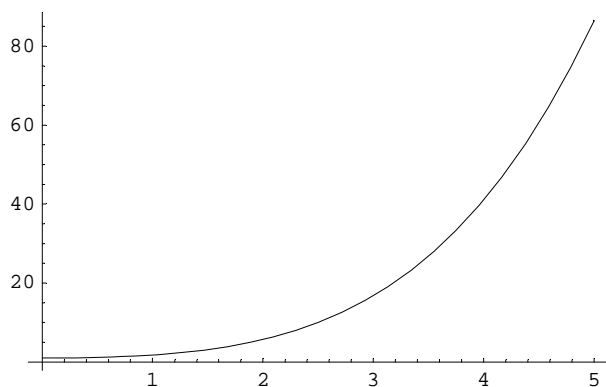
$$\frac{1}{8} e^{-\sqrt{2} x^{1710}} \left(8 - \sqrt{2} + (8 + \sqrt{2}) e^{2\sqrt{2} x^{1710}} - 4 e^{\sqrt{2} x^{1710}} (2 + x^{1710} + x^{1710^2}) \right)$$



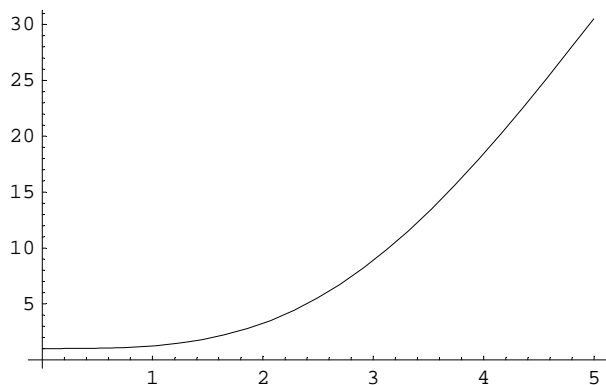
$$k1 = 0 \quad k2 = -1 \quad / \quad y[x] = -3 + \frac{3 e^{-x^{1717}}}{2} + \frac{5 e^{x^{1717}}}{2} - x^{1717} - x^{1717^2}$$



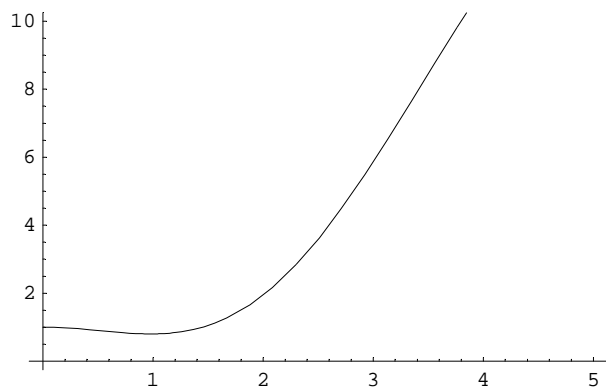
$$k_1 = 0 \quad k_2 = 0 \quad / \quad y[x] = \frac{1}{12} (12 + 6 x^{1723^2} + 2 x^{1723^3} + x^{1723^4})$$



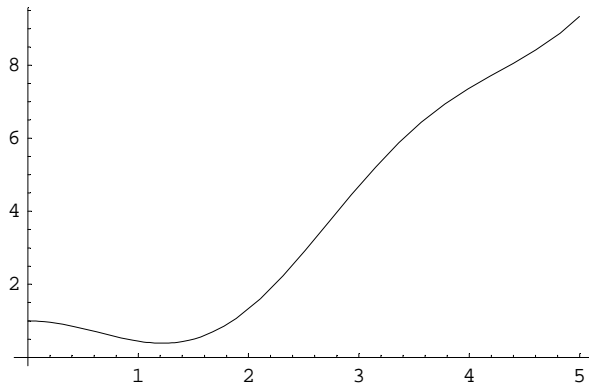
$$k_1 = 0 \quad k_2 = 1 \quad / \quad y[x] = -1 + x^{1731} + x^{1731^2} + 2 \operatorname{Cos}[x^{1731}] - \operatorname{Sin}[x^{1731}]$$



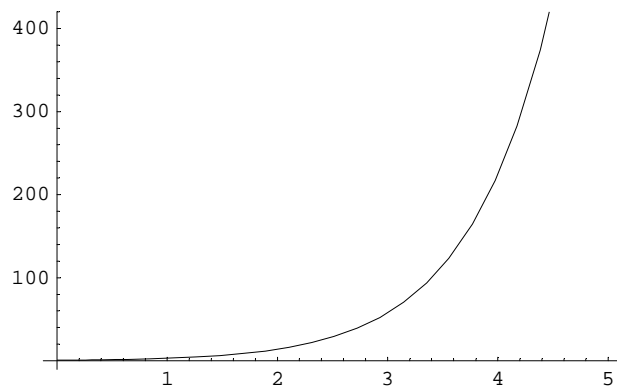
$$k_1 = 0 \quad k_2 = 2 \quad / \quad y[x] = \frac{1}{4} (2 x^{1737} (1 + x^{1737}) + 4 \operatorname{Cos}[\sqrt{2} x^{1737}] - \sqrt{2} \operatorname{Sin}[\sqrt{2} x^{1737}])$$



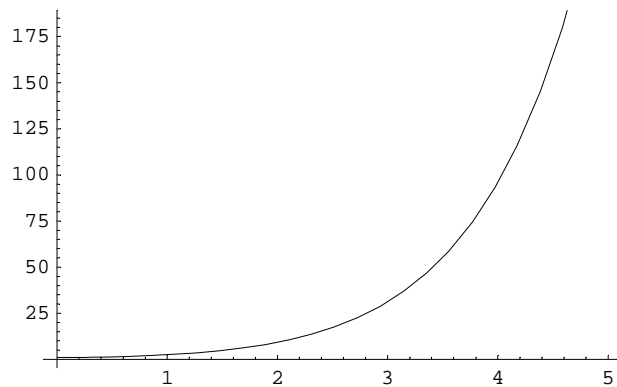
$$k_1 = 0 \quad k_2 = 3 \quad / \quad y[x] = \frac{1}{9} (1 + 3 x^{1743} + 3 x^{1743^2} + 8 \operatorname{Cos}[\sqrt{3} x^{1743}] - \sqrt{3} \operatorname{Sin}[\sqrt{3} x^{1743}])$$



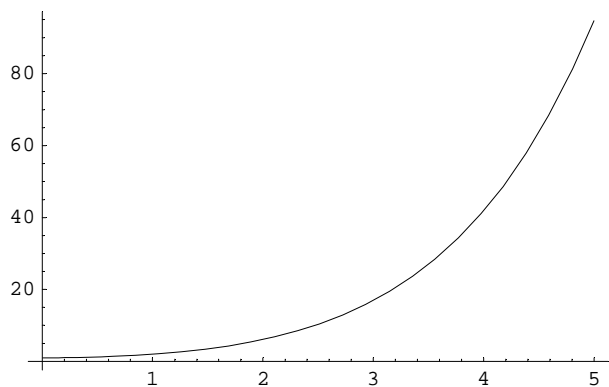
$$k1 = 1 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{702} e^{-\frac{1}{2}(1+\sqrt{13})x} \left((611 - 77\sqrt{13} + (611 + 77\sqrt{13}) e^{\sqrt{13}x} - 26 e^{\frac{1}{2}(1+\sqrt{13})x} (20 + 15x + 9x^2)) \right)$$



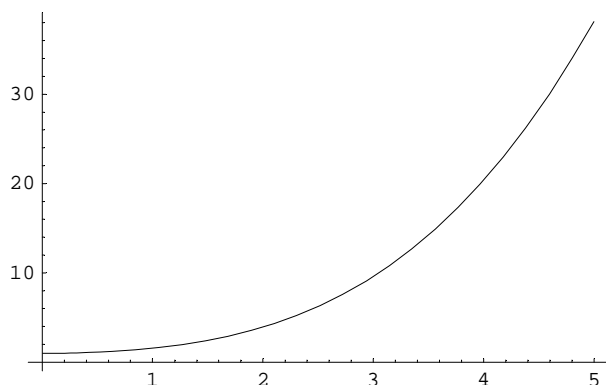
$$k1 = 1 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{2} (-3 + e^{-2x} + 4 e^{x} - 2x - x^2)$$



$$k1 = 1 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{10} e^{-\frac{1}{2}(1+\sqrt{5})x} \left((35 - 13\sqrt{5} + (35 + 13\sqrt{5}) e^{\sqrt{5}x} - 10 e^{\frac{1}{2}(1+\sqrt{5})x} (6 + 3x + x^2)) \right)$$

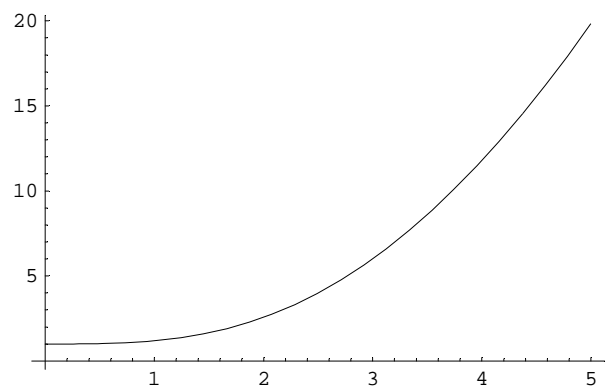


$$k1 = 1 \quad k2 = 0 \quad / \quad y[x] = -1 + 2 e^{-x\$1769} + 2 x\$1769 - \frac{x\$1769^2}{2} + \frac{x\$1769^3}{3}$$

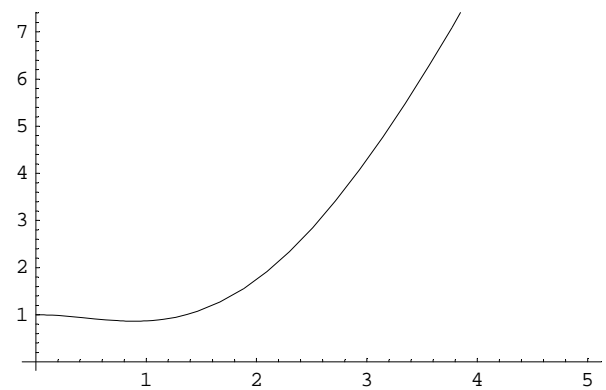


$$k1 = 1 \quad k2 = 1 \quad / \quad y[x] =$$

$$e^{-x\$1778/2} \left(e^{x\$1778/2} (-1 + x\$1778) x\$1778 + \text{Cos} \left[\frac{\sqrt{3} x\$1778}{2} \right] + \sqrt{3} \text{Sin} \left[\frac{\sqrt{3} x\$1778}{2} \right] \right)$$

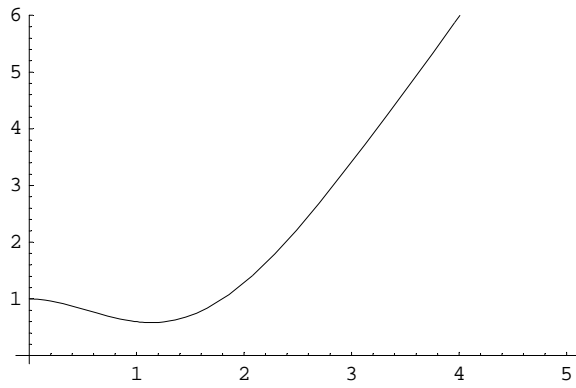


$$k1 = 1 \quad k2 = 2 \quad / \quad y[x] = \frac{x\$1784^2}{2} + e^{-x\$1784/2} \text{Cos} \left[\frac{\sqrt{7} x\$1784}{2} \right] + \frac{e^{-x\$1784/2} \text{Sin} \left[\frac{\sqrt{7} x\$1784}{2} \right]}{\sqrt{7}}$$

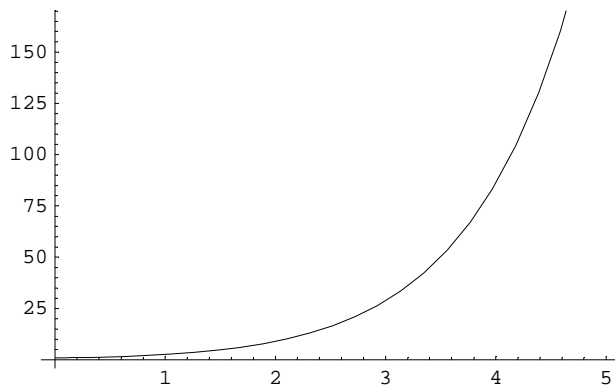


$$k1 = 1 \quad k2 = 3 \quad / \quad y[x] =$$

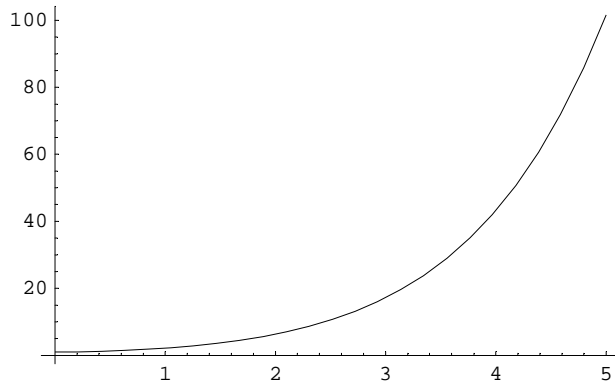
$$\frac{1}{297} \left(22 + 33 x\$1790 + 99 x\$1790^2 + 275 e^{-x\$1790/2} \text{Cos} \left[\frac{\sqrt{11} x\$1790}{2} \right] + 19 \sqrt{11} e^{-x\$1790/2} \text{Sin} \left[\frac{\sqrt{11} x\$1790}{2} \right] \right)$$



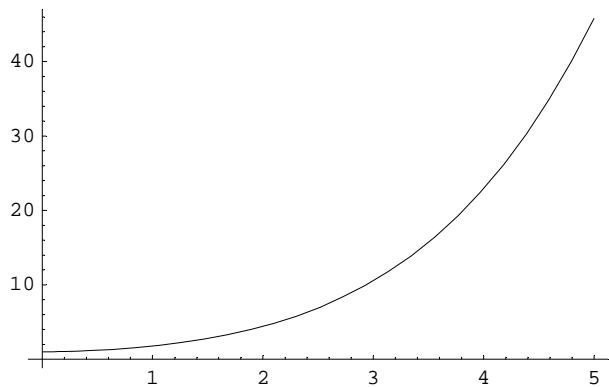
$$k1 = 2 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{108} (35 e^{-3 x^{1796}} + 189 e^{x^{1796}} - 4 (29 + 21 x^{1796} + 9 x^{1796^2}))$$



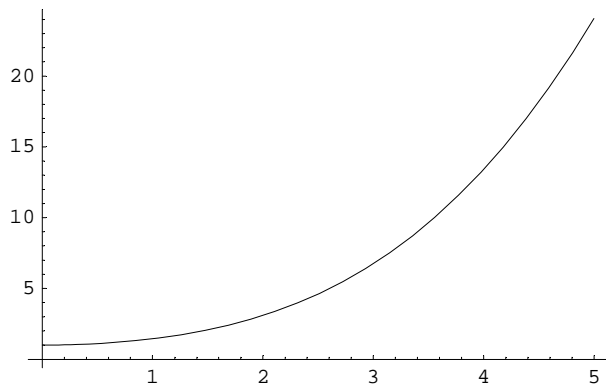
$$k1 = 2 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{12} e^{-(1+\sqrt{3}) x^{1802}} (21 - 10 \sqrt{3} + (21 + 10 \sqrt{3}) e^{2\sqrt{3} x^{1802}} - 6 e^{(1+\sqrt{3}) x^{1802}} (5 + 3 x^{1802} + x^{1802^2}))$$



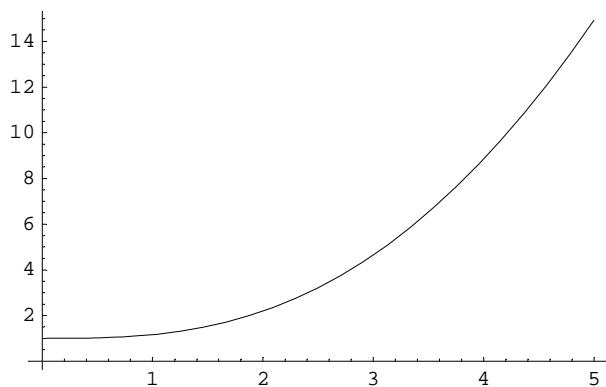
$$k1 = 2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{4} e^{-(1+\sqrt{2}) x^{1809}} (28 - 19 \sqrt{2} + (28 + 19 \sqrt{2}) e^{2\sqrt{2} x^{1809}} - 4 e^{(1+\sqrt{2}) x^{1809}} (13 + 5 x^{1809} + x^{1809^2}))$$



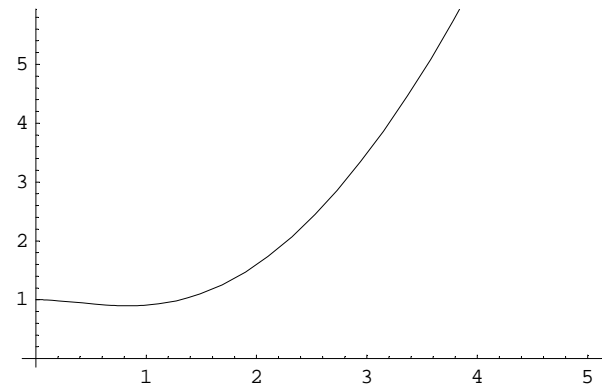
$$k1 = 2 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{12} (9 + 3 e^{-2x1816} + 6 x1816 + 2 x1816^3)$$



$$k1 = 2 \quad k2 = 1 \quad / \quad y[x] = e^{-x1824} (-4 - x1824 + e^{x1824} (5 - 3 x1824 + x1824^2))$$

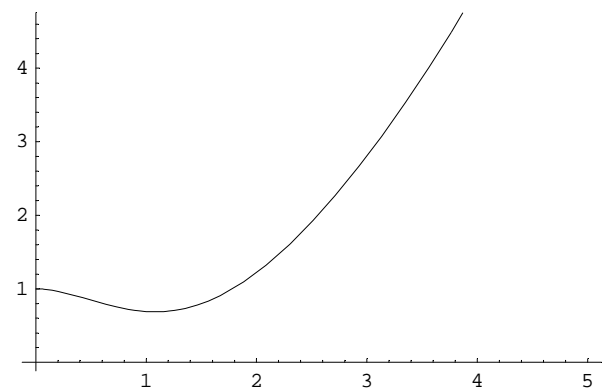


$$k1 = 2 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} e^{-x1830} (e^{x1830} (1 - x1830 + x1830^2) + \text{Cos}[x1830] + 2 \text{Sin}[x1830])$$

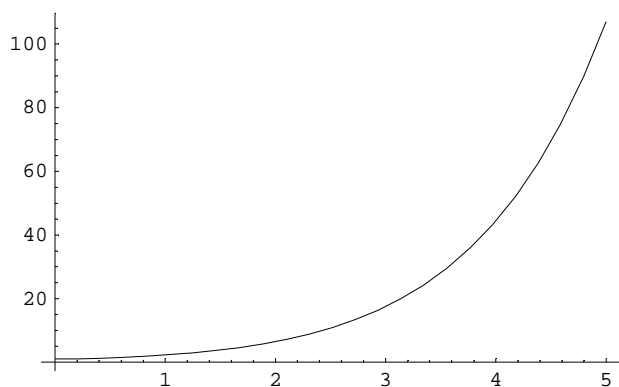


$$k1 = 2 \quad k2 = 3 \quad / \quad y[x] =$$

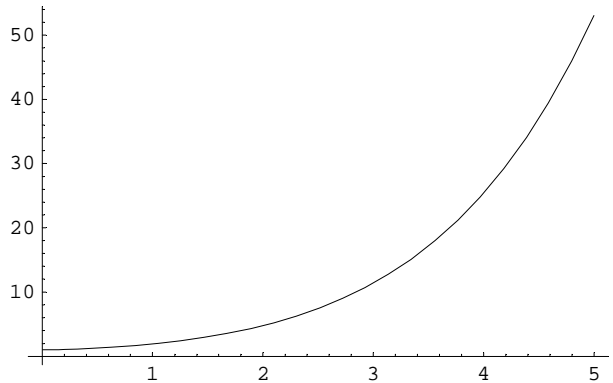
$$\frac{1}{54} e^{-x1836} (2 e^{x1836} (5 - 3 x1836 + 9 x1836^2) + 44 \text{Cos}[\sqrt{2} x1836] + 25 \sqrt{2} \text{Sin}[\sqrt{2} x1836])$$



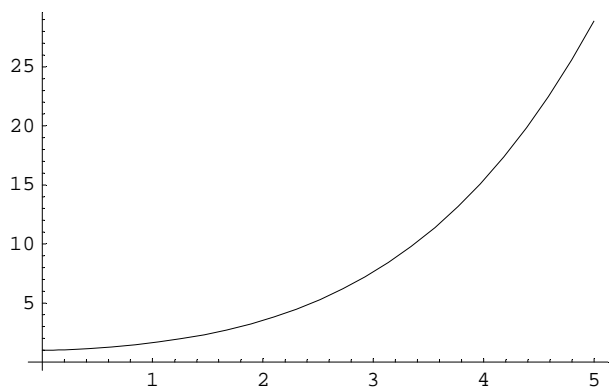
$$k1 = 3 \quad k2 = -3 \quad / \quad Y[x] = \frac{1}{126} e^{-\frac{1}{2}(3+\sqrt{21})x} \left((161 - 29\sqrt{21} + (161 + 29\sqrt{21}) e^{\sqrt{21}x} - 14 e^{\frac{1}{2}(3+\sqrt{21})x} (14 + 9x + 3x^2)) \right)$$



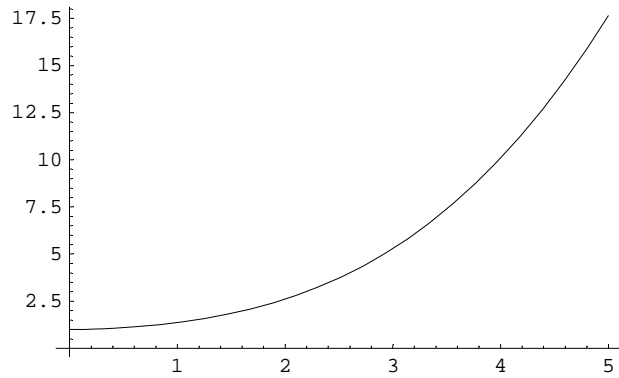
$$k1 = 3 \quad k2 = -2 \quad / \quad Y[x] = \frac{1}{34} e^{-\frac{1}{2}(3+\sqrt{17})x} \left((85 - 19\sqrt{17} + (85 + 19\sqrt{17}) e^{\sqrt{17}x} - 17 e^{\frac{1}{2}(3+\sqrt{17})x} (8 + 4x + x^2)) \right)$$



$$k1 = 3 \quad k2 = -1 \quad / \quad Y[x] = \frac{1}{26} e^{-\frac{1}{2}(3+\sqrt{13})x} \left((325 - 89\sqrt{13} + (325 + 89\sqrt{13}) e^{\sqrt{13}x} - 26 e^{\frac{1}{2}(3+\sqrt{13})x} (24 + 7x + x^2)) \right)$$

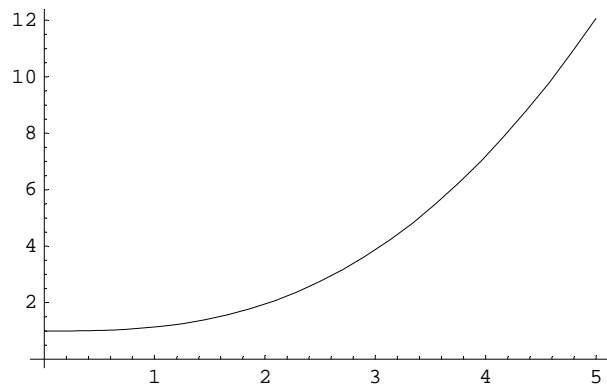


$$k1 = 3 \quad k2 = 0 \quad / \quad Y[x] = \frac{1}{162} (146 + 16 e^{-3x} + 48x + 9x^2 + 18x^3)$$

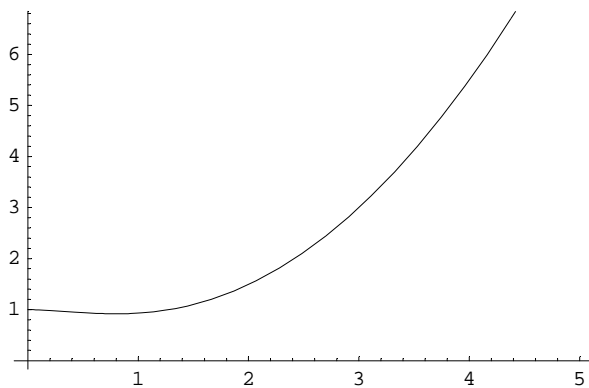


$$k1 = 3 \quad k2 = 1 \quad / \quad y[x] =$$

$$\frac{1}{10} e^{-\frac{1}{2}(3+\sqrt{5})x} (-65 + 29\sqrt{5} - (65 + 29\sqrt{5}) e^{\sqrt{5}x} + 10 e^{\frac{1}{2}(3+\sqrt{5})x} (14 - 5x + x^2))$$

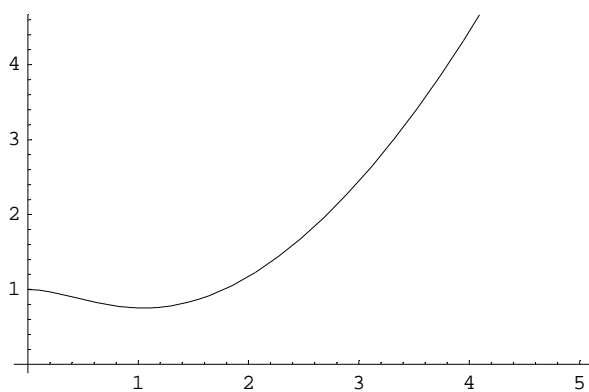


$$k1 = 3 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} (3 - e^{-2x} - 2x + x^2)$$



$$k1 = 3 \quad k2 = 3 \quad / \quad y[x] =$$

$$\frac{1}{9} \left(4 - 3x + 3x^2 + 5 e^{-3x/2} \cos\left[\frac{\sqrt{3}x}{2}\right] + 7\sqrt{3} e^{-3x/2} \sin\left[\frac{\sqrt{3}x}{2}\right] \right)$$



iv

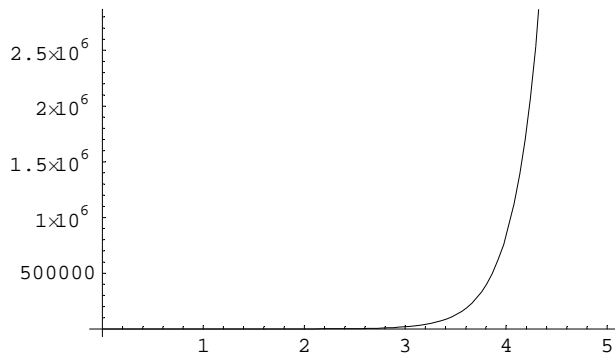
```

Remove["Global`*"];
m5[k1_,k2_,y0_,y1_]:=Module[{x,y},
solv =
DSolve[{y''[x]+ k1 y'[x]+ k2 y[x]==Cos[2 x-1], y[0]==y0, y'[0]==y1},y,x];
y = y/.solv[[1]];
Print["k1 = ",k1," k2 = ",k2, " / y[x] = ",y[x]//Simplify];
Plot[y[x],{x,0,5}];

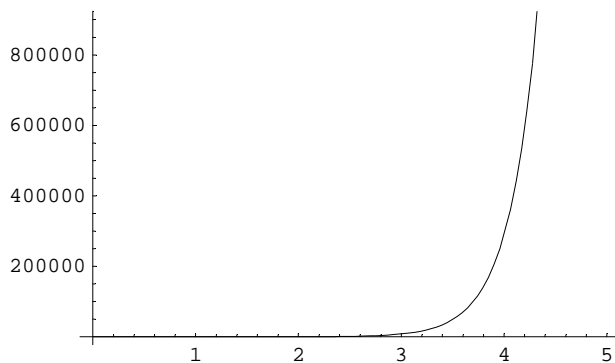
Table[m5[k1,k2,1,0],{k1,-3,3},{k2,-3,3}];

```

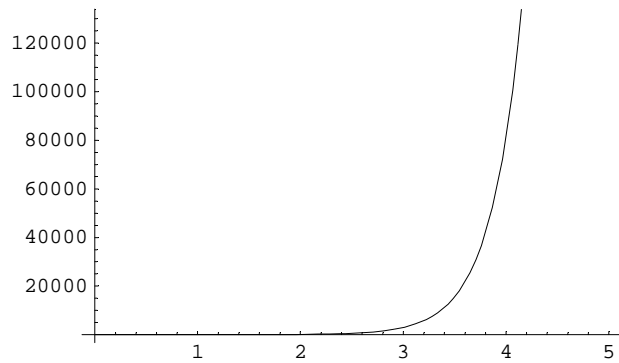
$$k1 = -3 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{7140} \left(-588 \cos[1 - 2x] e^{-\frac{1}{2}(-3+\sqrt{21})x} (3570 + 510\sqrt{21} + 294 \cos[1] - 6\sqrt{21} \cos[1] - 252 \sin[1] - 92\sqrt{21} \sin[1] + e^{\sqrt{21}x} (-510(-7+\sqrt{21}) + 6(49+\sqrt{21}) \cos[1] + 4(-63+23\sqrt{21}) \sin[1]) + 504 e^{\frac{1}{2}(-3+\sqrt{21})x} \sin[1 - 2x] \right)$$



$$k1 = -3 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{408} e^{-\frac{1}{2}(-3+\sqrt{17})x} (204 + 36\sqrt{17} + 204 e^{\sqrt{17}x} - 36\sqrt{17} e^{\sqrt{17}x} + 17 \cos[1] - \sqrt{17} \cos[1] + 17 e^{\sqrt{17}x} \cos[1] + \sqrt{17} e^{\sqrt{17}x} \cos[1] - 34 e^{\frac{1}{2}(-3+\sqrt{17})x} \cos[1 - 2x] - 17 \sin[1] - 7\sqrt{17} \sin[1] - 17 e^{\sqrt{17}x} \sin[1] + 7\sqrt{17} e^{\sqrt{17}x} \sin[1] + 34 e^{\frac{1}{2}(-3+\sqrt{17})x} \sin[1 - 2x])$$

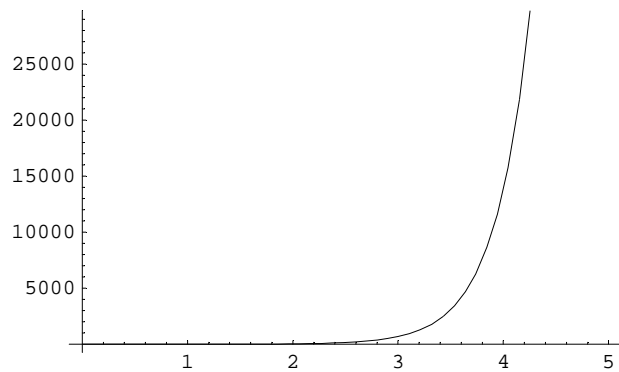


$$k1 = -3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{1586} \left(e^{-\frac{1}{2}(-3+\sqrt{13})x} (793 + 183\sqrt{13} + 793 e^{\sqrt{13}x} - 183\sqrt{13} e^{\sqrt{13}x} + 65 \cos[1] - 9\sqrt{13} \cos[1] + 65 e^{\sqrt{13}x} \cos[1] + 9\sqrt{13} e^{\sqrt{13}x} \cos[1] - 130 e^{\frac{1}{2}(-3+\sqrt{13})x} \cos[1 - 2x] - 78 \sin[1] - 38\sqrt{13} \sin[1] - 78 e^{\sqrt{13}x} \sin[1] + 38\sqrt{13} e^{\sqrt{13}x} \sin[1] + 156 e^{\frac{1}{2}(-3+\sqrt{13})x} \sin[1 - 2x] \right)$$



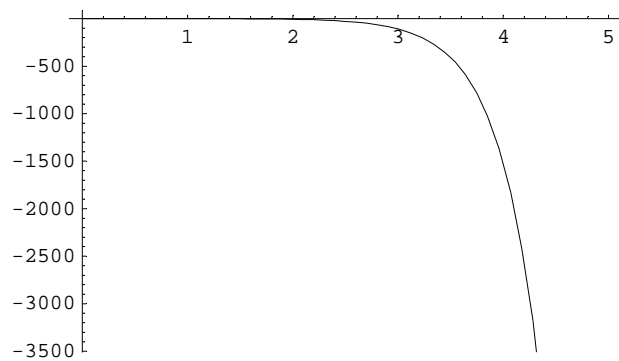
$$k1 = -3 \quad k2 = 0 \quad / \quad y[x] =$$

$$\frac{1}{78} (78 + 6 e^{3 x^{2013}} \cos[1] - 6 \cos[1 - 2 x^{2013}] - 13 \sin[1] + 4 e^{3 x^{2013}} \sin[1] + 9 \sin[1 - 2 x^{2013}])$$



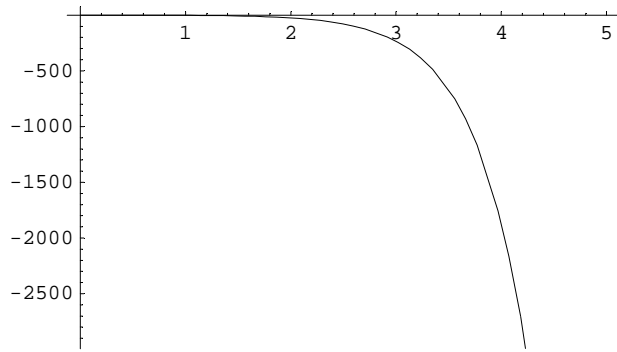
$$k1 = -3 \quad k2 = 1 \quad / \quad y[x] =$$

$$\frac{1}{30} e^{-\frac{1}{2} (-3+\sqrt{5}) x^{2024}} (15 + 9 \sqrt{5} + 15 e^{\sqrt{5} x^{2024}} - 9 \sqrt{5} e^{\sqrt{5} x^{2024}} + \cos[1] - \sqrt{5} \cos[1] + e^{\sqrt{5} x^{2024}} \cos[1] + \sqrt{5} e^{\sqrt{5} x^{2024}} \cos[1] - 2 e^{\frac{1}{2} (-3+\sqrt{5}) x^{2024}} \cos[1 - 2 x^{2024}] - 2 \sin[1] - 2 \sqrt{5} \sin[1] - 2 e^{\sqrt{5} x^{2024}} \sin[1] + 2 \sqrt{5} e^{\sqrt{5} x^{2024}} \sin[1] + 4 e^{\frac{1}{2} (-3+\sqrt{5}) x^{2024}} \sin[1 - 2 x^{2024}])$$



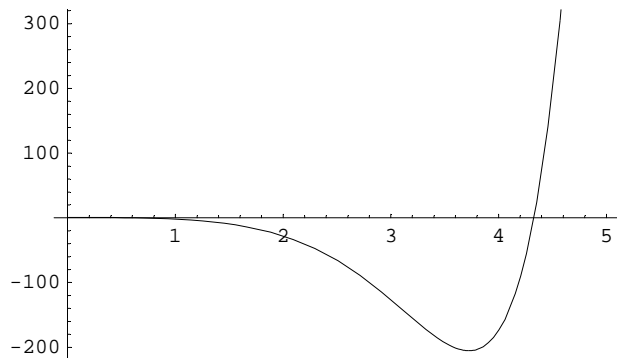
$$k1 = -3 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{20} (-\cos[1 - 2 x^{2061}] +$$

$$e^{x^{2061}} (5 e^{x^{2061}} (-4 + \cos[1] + \sin[1]) - 4 (-10 + \cos[1] + 2 \sin[1])) + 3 \sin[1 - 2 x^{2061}])$$



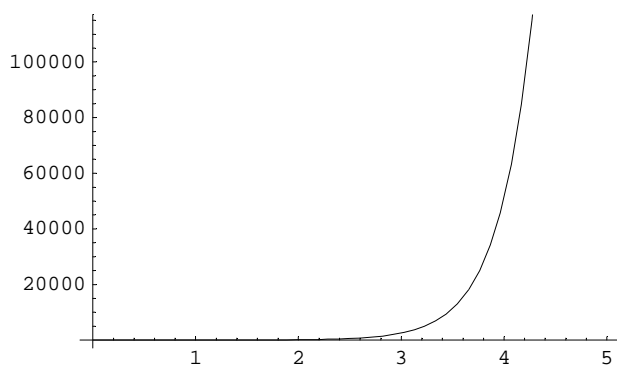
k1 = -3 k2 = 3 / y[x] =

$$\frac{1}{222} \left(-6 \cos[x\$2078]^2 (\cos[1] - 6 \sin[1]) + 6 e^{3 x\$2078/2} \cos\left[\frac{\sqrt{3} x\$2078}{2}\right] (37 + \cos[1] - 6 \sin[1]) - 72 \cos[1] \cos[x\$2078] \sin[x\$2078] + 6 \cos[1] \sin[x\$2078]^2 - 36 \sin[1] \sin[x\$2078]^2 - 6 \sin[1] \sin[2 x\$2078] - 222 \sqrt{3} e^{3 x\$2078/2} \sin\left[\frac{\sqrt{3} x\$2078}{2}\right] + 42 \sqrt{3} e^{3 x\$2078/2} \cos[1] \sin\left[\frac{\sqrt{3} x\$2078}{2}\right] + 44 \sqrt{3} e^{3 x\$2078/2} \sin[1] \sin\left[\frac{\sqrt{3} x\$2078}{2}\right] \right)$$

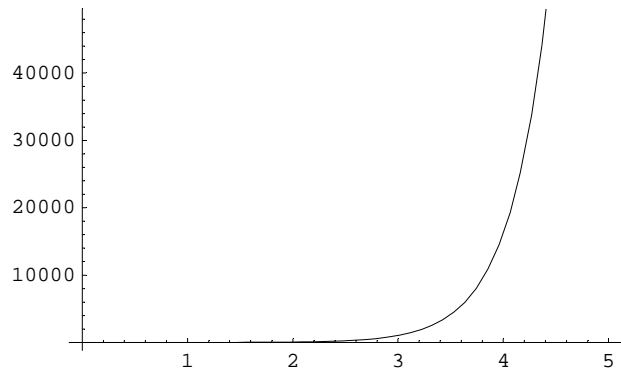


k1 = -2 k2 = -3 / y[x] =

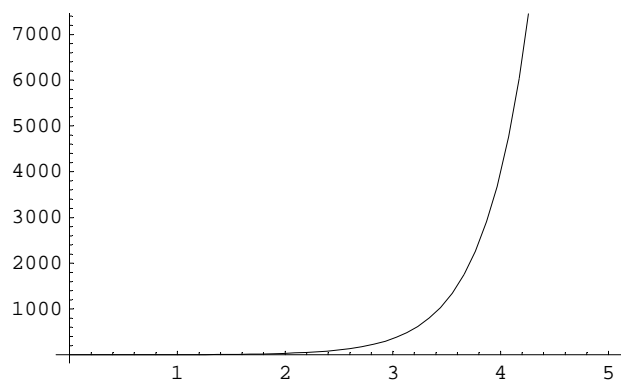
$$\frac{1}{260} e^{-x\$2125} (195 + 65 e^{4 x\$2125} + 13 \cos[1] + 15 e^{4 x\$2125} \cos[1] - 28 e^{x\$2125} \cos[1 - 2 x\$2125] - 26 \sin[1] + 10 e^{4 x\$2125} \sin[1] + 16 e^{x\$2125} \sin[1 - 2 x\$2125])$$



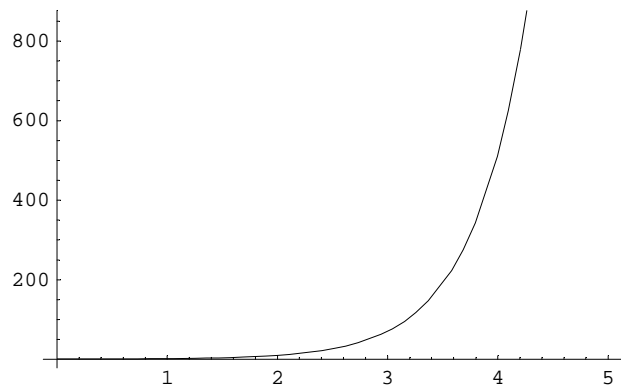
k1 = -2 k2 = -2 / y[x] = $\frac{1}{156} \left(-18 \cos[1 - 2 x\$2147] + e^{-\sqrt{3} x\$2147} \left(e^{x\$2147} (78 + 26 \sqrt{3} - (-9 + \sqrt{3}) \cos[1] - 6 \sin[1] - 8 \sqrt{3} \sin[1] + e^{2 \sqrt{3} x\$2147} (78 - 26 \sqrt{3} + (9 + \sqrt{3}) \cos[1] - 6 \sin[1] + 8 \sqrt{3} \sin[1])) + 12 e^{\sqrt{3} x\$2147} \sin[1 - 2 x\$2147] \right) \right)$



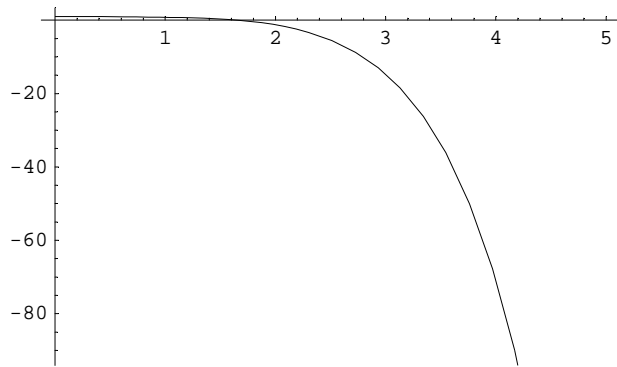
$$k1 = -2 \quad k2 = -1 / \quad y[x] = \frac{1}{164} \left(-20 \operatorname{Cos}[1 - 2 x\$2175] + e^{-\sqrt{2} x\$2175} \left(e^{x\$2175} \left(82 + 41 \sqrt{2} + (10 - 3 \sqrt{2}) \operatorname{Cos}[1] - 8 \operatorname{Sin}[1] - 14 \sqrt{2} \operatorname{Sin}[1] + e^{2 \sqrt{2} x\$2175} (82 - 41 \sqrt{2} + (10 + 3 \sqrt{2}) \operatorname{Cos}[1] - 8 \operatorname{Sin}[1] + 14 \sqrt{2} \operatorname{Sin}[1]) \right) + 16 e^{\sqrt{2} x\$2175} \operatorname{Sin}[1 - 2 x\$2175] \right) \right)$$



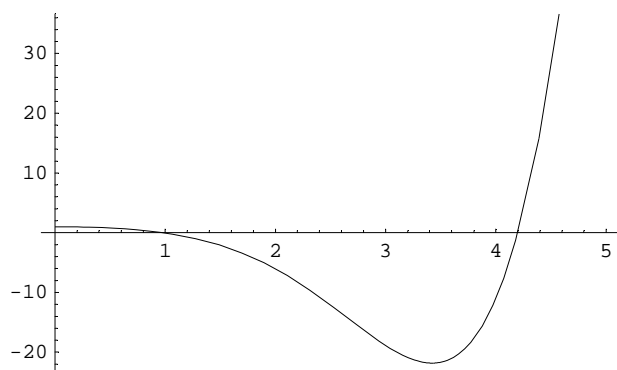
$$k1 = -2 \quad k2 = 0 / \quad y[x] = \frac{1}{8} \left(8 + e^{2 x\$2212} \operatorname{Cos}[1] - \operatorname{Cos}[1 - 2 x\$2212] - 2 \operatorname{Sin}[1] + e^{2 x\$2212} \operatorname{Sin}[1] + \operatorname{Sin}[1 - 2 x\$2212] \right)$$



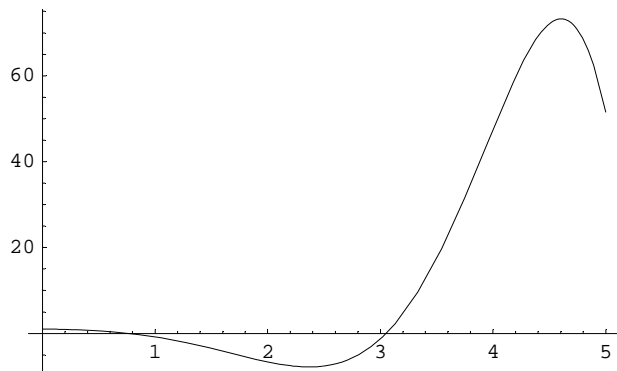
$$k1 = -2 \quad k2 = 1 / \quad y[x] = \frac{1}{25} \left(-3 \operatorname{Cos}[1 - 2 x\$2223] + e^{x\$2223} \left(25 + 3 \operatorname{Cos}[1] - 4 \operatorname{Sin}[1] + 5 x\$2223 \left(-5 + \operatorname{Cos}[1] + 2 \operatorname{Sin}[1] \right) \right) + 4 \operatorname{Sin}[1 - 2 x\$2223] \right)$$



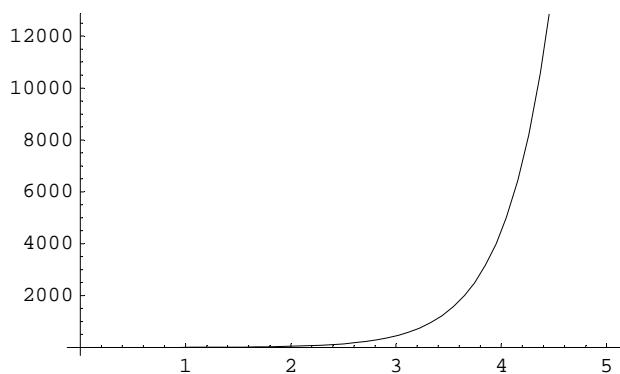
$$k1 = -2 \quad k2 = 2 / \quad y[x] = \frac{1}{20} (-2 \text{Cos}[1 - 2 x\$2240] + 5 e^{x\$2240} \text{Cos}[1 - x\$2240] + 20 e^{x\$2240} \text{Cos}[x\$2240] - 3 e^{x\$2240} \text{Cos}[1 + x\$2240] + 4 \text{Sin}[1 - 2 x\$2240] - 5 e^{x\$2240} \text{Sin}[1 - x\$2240] - 20 e^{x\$2240} \text{Sin}[x\$2240] + e^{x\$2240} \text{Sin}[1 + x\$2240])$$



$$k1 = -2 \quad k2 = 3 / \quad y[x] = \frac{1}{34} (-2 \text{Cos}[x\$2268]^2 (\text{Cos}[1] - 4 \text{Sin}[1]) + 2 e^{x\$2268} \text{Cos}[\sqrt{2} x\$2268] (17 + \text{Cos}[1] - 4 \text{Sin}[1]) - 4 \text{Cos}[x\$2268] \text{Sin}[1] \text{Sin}[x\$2268] + 2 \text{Cos}[1] \text{Sin}[x\$2268]^2 - 8 \text{Sin}[1] \text{Sin}[x\$2268]^2 - 8 \text{Cos}[1] \text{Sin}[2 x\$2268] - 17 \sqrt{2} e^{x\$2268} \text{Sin}[\sqrt{2} x\$2268] + 7 \sqrt{2} e^{x\$2268} \text{Cos}[1] \text{Sin}[\sqrt{2} x\$2268] + 6 \sqrt{2} e^{x\$2268} \text{Sin}[1] \text{Sin}[\sqrt{2} x\$2268])$$

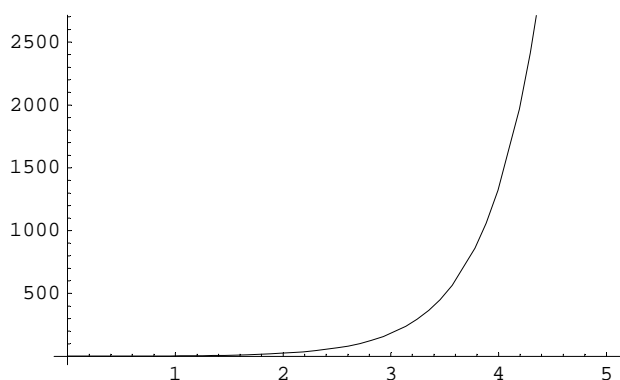


$$k1 = -1 \quad k2 = -3 / \quad y[x] = \frac{1}{1378} (e^{-\frac{1}{2} (-1+\sqrt{13}) x\$2302} (689 + 53 \sqrt{13} + 689 e^{\sqrt{13} x\$2302} - 53 \sqrt{13} e^{\sqrt{13} x\$2302} + 91 \text{Cos}[1] - \sqrt{13} \text{Cos}[1] + 91 e^{\sqrt{13} x\$2302} \text{Cos}[1] + \sqrt{13} e^{\sqrt{13} x\$2302} \text{Cos}[1] - 182 e^{\frac{1}{2} (-1+\sqrt{13}) x\$2302} \text{Cos}[1 - 2 x\$2302] - 26 \text{Sin}[1] - 30 \sqrt{13} \text{Sin}[1] - 26 e^{\sqrt{13} x\$2302} \text{Sin}[1] + 30 \sqrt{13} e^{\sqrt{13} x\$2302} \text{Sin}[1] + 52 e^{\frac{1}{2} (-1+\sqrt{13}) x\$2302} \text{Sin}[1 - 2 x\$2302]))$$



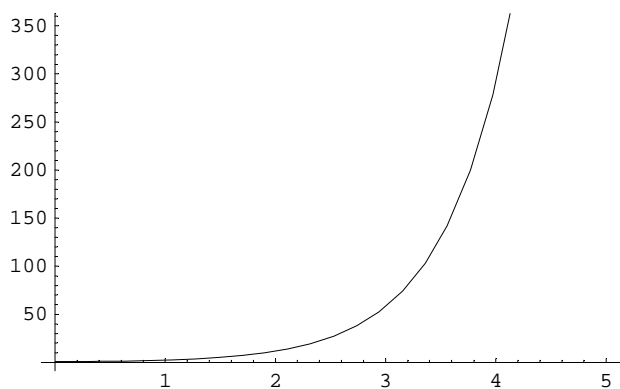
$$k1 = -1 \quad k2 = -2 \quad / \quad y[x] =$$

$$\frac{1}{60} e^{-x^{2327}} (40 + 20 e^{3x^{2327}} + 4 \operatorname{Cos}[1] + 5 e^{3x^{2327}} \operatorname{Cos}[1] - 9 e^{x^{2327}} \operatorname{Cos}[1 - 2x^{2327}] - 8 \operatorname{Sin}[1] + 5 e^{3x^{2327}} \operatorname{Sin}[1] + 3 e^{x^{2327}} \operatorname{Sin}[1 - 2x^{2327}])$$



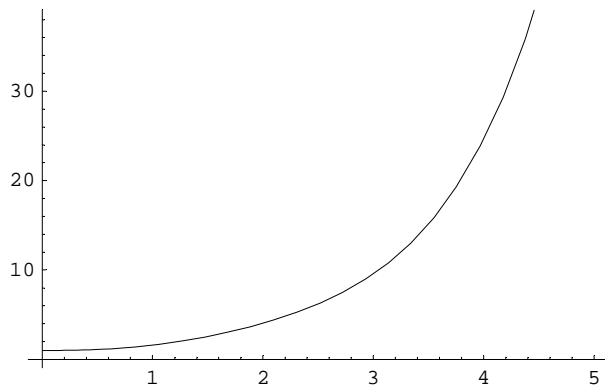
$$k1 = -1 \quad k2 = -1 \quad / \quad y[x] =$$

$$\frac{1}{580} (-100 \operatorname{Cos}[1 - 2x^{2346}] + e^{-\frac{1}{2}(-1+\sqrt{5})x^{2346}} (290 + 58\sqrt{5} + 50 \operatorname{Cos}[1] - 6\sqrt{5} \operatorname{Cos}[1] - 20 \operatorname{Sin}[1] - 44\sqrt{5} \operatorname{Sin}[1] + e^{\sqrt{5}x^{2346}} (-58(-5+\sqrt{5}) + (50+6\sqrt{5}) \operatorname{Cos}[1] + 4(-5+11\sqrt{5}) \operatorname{Sin}[1]) + 40 e^{\frac{1}{2}(-1+\sqrt{5})x^{2346}} \operatorname{Sin}[1 - 2x^{2346}]))$$



$$k1 = -1 \quad k2 = 0 \quad / \quad y[x] =$$

$$\frac{1}{10} (10 + 2 e^{x^{2371}} \operatorname{Cos}[1] - 2 \operatorname{Cos}[1 - 2x^{2371}] - 5 \operatorname{Sin}[1] + 4 e^{x^{2371}} \operatorname{Sin}[1] + \operatorname{Sin}[1 - 2x^{2371}])$$



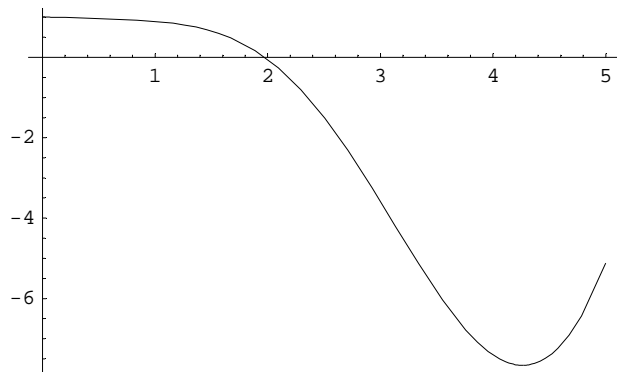
$$k1 = -1 \quad k2 = 1 / y[x] =$$

$$\frac{1}{39} \left(3 e^{x\$2382/2} \cos\left[\frac{\sqrt{3} x\$2382}{2}\right] (13 + 3 \cos[1] - 2 \sin[1]) + \cos[x\$2382]^2 (-9 \cos[1] + 6 \sin[1]) + \right.$$

$$9 \cos[1] \sin[x\$2382]^2 - 6 \sin[1] \sin[x\$2382]^2 - 6 \cos[1] \sin[2 x\$2382] -$$

$$9 \sin[1] \sin[2 x\$2382] - 13 \sqrt{3} e^{x\$2382/2} \sin\left[\frac{\sqrt{3} x\$2382}{2}\right] +$$

$$\left. 5 \sqrt{3} e^{x\$2382/2} \cos[1] \sin\left[\frac{\sqrt{3} x\$2382}{2}\right] + 14 \sqrt{3} e^{x\$2382/2} \sin[1] \sin\left[\frac{\sqrt{3} x\$2382}{2}\right] \right)$$



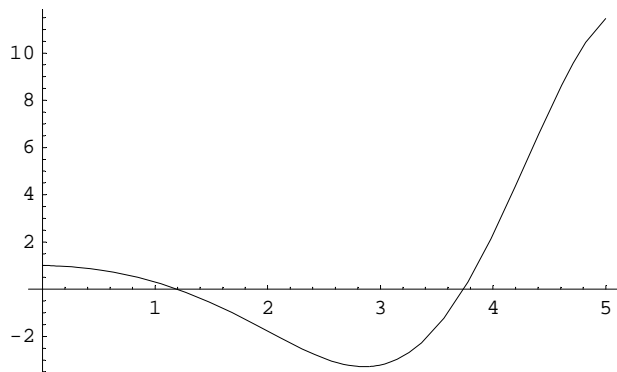
$$k1 = -1 \quad k2 = 2 / y[x] =$$

$$\frac{1}{28} \left(-7 \cos[x\$2417]^2 (\cos[1] - \sin[1]) + 7 e^{x\$2417/2} \cos\left[\frac{\sqrt{7} x\$2417}{2}\right] (4 + \cos[1] - \sin[1]) + \right.$$

$$7 \cos[1] \sin[x\$2417]^2 - 7 \sin[1] \sin[x\$2417]^2 - 7 \cos[1] \sin[2 x\$2417] -$$

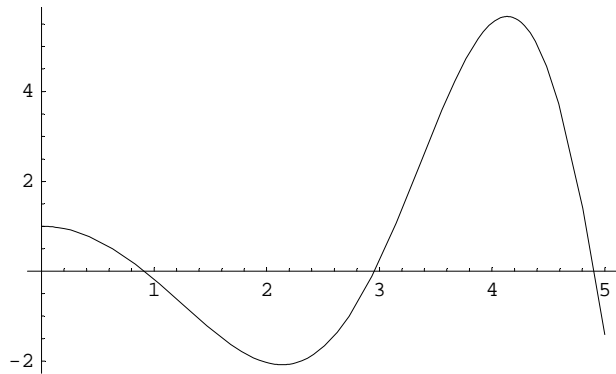
$$7 \sin[1] \sin[2 x\$2417] - 4 \sqrt{7} e^{x\$2417/2} \sin\left[\frac{\sqrt{7} x\$2417}{2}\right] +$$

$$\left. 3 \sqrt{7} e^{x\$2417/2} \cos[1] \sin\left[\frac{\sqrt{7} x\$2417}{2}\right] + 5 \sqrt{7} e^{x\$2417/2} \sin[1] \sin\left[\frac{\sqrt{7} x\$2417}{2}\right] \right)$$



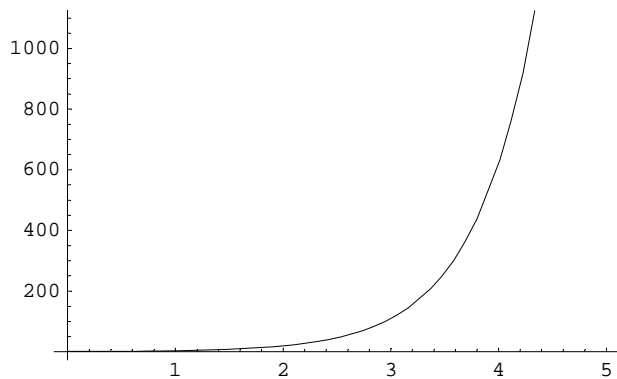
$k1 = -1 \quad k2 = 3 \quad / \quad y[x] =$

$$\frac{1}{55} \left(-11 \cos[x^{2466}]^2 (\cos[1] - 2 \sin[1]) + 11 e^{x^{2466/2}} \cos\left[\frac{\sqrt{11} x^{2466}}{2}\right] (5 + \cos[1] - 2 \sin[1]) + 11 \cos[1] \sin[x^{2466}]^2 - 22 \sin[1] \sin[x^{2466}]^2 - 11 (2 \cos[1] + \sin[1]) \sin[2 x^{2466}] - 5 \sqrt{11} e^{x^{2466/2}} \sin\left[\frac{\sqrt{11} x^{2466}}{2}\right] + 7 \sqrt{11} e^{x^{2466/2}} \cos[1] \sin\left[\frac{\sqrt{11} x^{2466}}{2}\right] + 6 \sqrt{11} e^{x^{2466/2}} \sin[1] \sin\left[\frac{\sqrt{11} x^{2466}}{2}\right] \right)$$



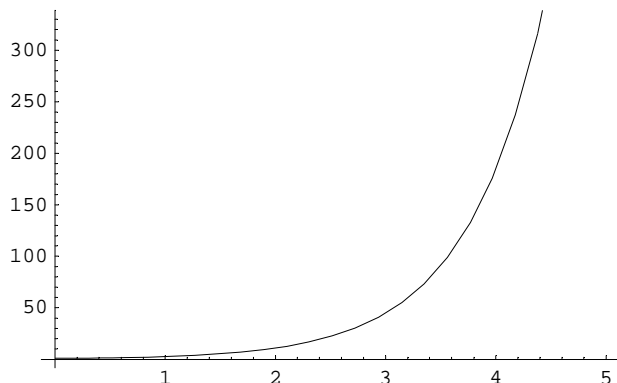
$k1 = 0 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{42} e^{-\sqrt{3} x^{2510}}$

$$(21 + 3 \cos[1] - 6 e^{\sqrt{3} x^{2510}} \cos[1 - 2 x^{2510}] - 2 \sqrt{3} \sin[1] + e^{2 \sqrt{3} x^{2510}} (21 + 3 \cos[1] + 2 \sqrt{3} \sin[1]))$$



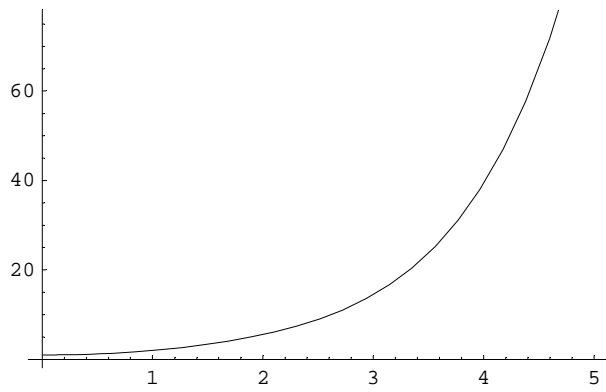
$k1 = 0 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{12} e^{-\sqrt{2} x^{2528}}$

$$(6 + \cos[1] - 2 e^{\sqrt{2} x^{2528}} \cos[1 - 2 x^{2528}] - \sqrt{2} \sin[1] + e^{2 \sqrt{2} x^{2528}} (6 + \cos[1] + \sqrt{2} \sin[1]))$$

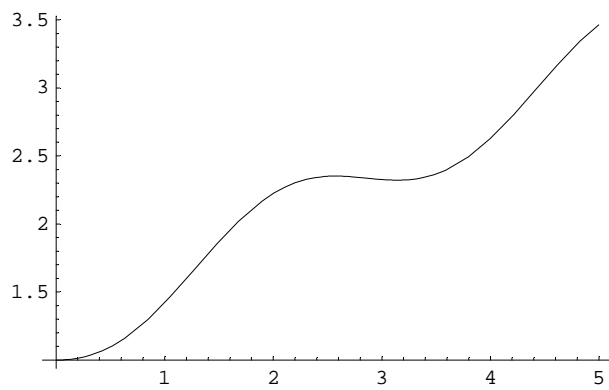


$k1 = 0 \quad k2 = -1 \quad / \quad y[x] =$

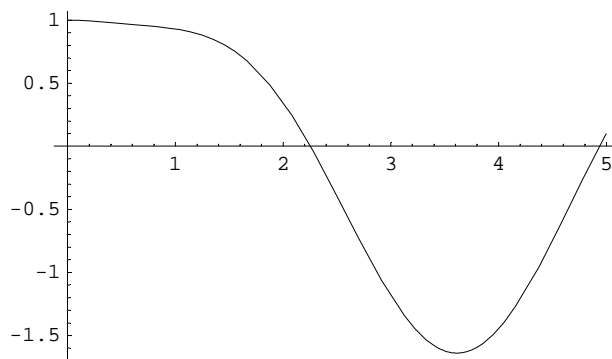
$$\frac{1}{10} e^{-x^{2546}} (5 + \cos[1] - 2 e^{x^{2546}} \cos[1 - 2 x^{2546}] - 2 \sin[1] + e^{2 x^{2546}} (5 + \cos[1] + 2 \sin[1]))$$



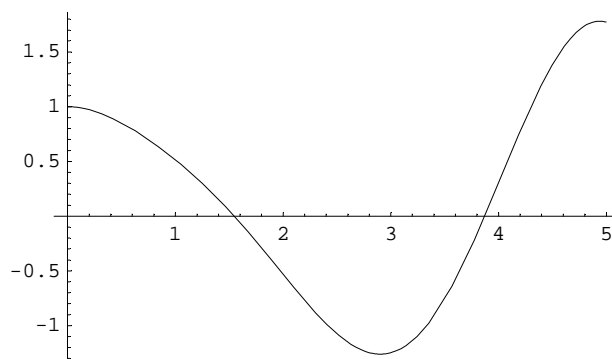
$$k1 = 0 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{4} (4 + \cos[1] - \cos[1 - 2 x^{2555}] + 2 x^{2555} \sin[1])$$



$$k1 = 0 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{3} (-\cos[1 - 2 x^{2563}] + (3 + \cos[1]) \cos[x^{2563}] + 2 \sin[1] \sin[x^{2563}])$$

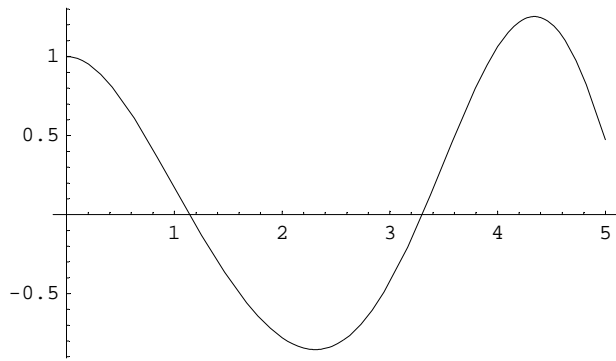


$$k1 = 0 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{2} (-\cos[1] \cos[x^{2577}]^2 + (2 + \cos[1]) \cos[\sqrt{2} x^{2577}] - 2 \cos[x^{2577}] \sin[1] \sin[x^{2577}] + \cos[1] \sin[x^{2577}]^2 + \sqrt{2} \sin[1] \sin[\sqrt{2} x^{2577}])$$



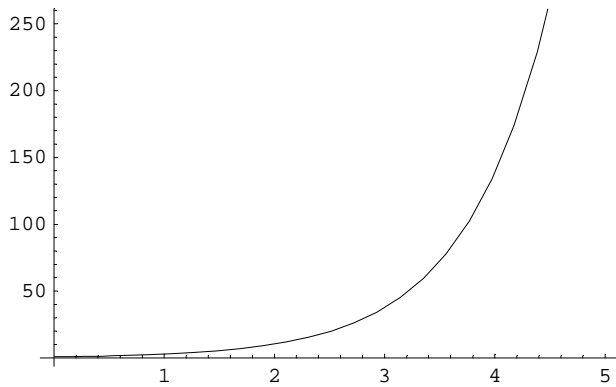
k1 = 0 k2 = 3 / y[x] =

$$\frac{1}{6} (-6 \cos[1] \cos[x^{2591}]^2 + 6 (1 + \cos[1]) \cos[\sqrt{3} x^{2591}] + 6 \cos[1] \sin[x^{2591}]^2 - 6 \sin[1] \sin[2 x^{2591}] + 4 \sqrt{3} \sin[1] \sin[\sqrt{3} x^{2591}])$$



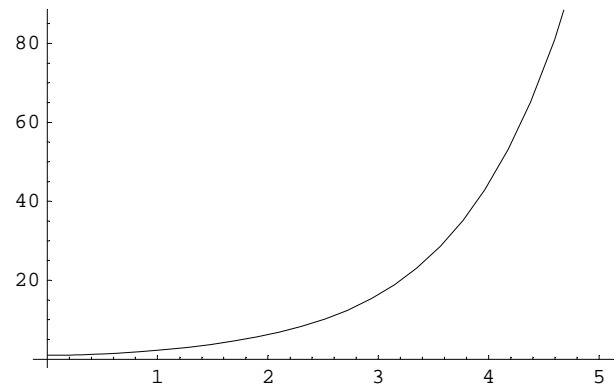
k1 = 1 k2 = -3 / y[x] =

$$\frac{1}{1378} (e^{-\frac{1}{2}(1+\sqrt{13})x^{2605}} (689 - 53\sqrt{13} + 689 e^{\sqrt{13}x^{2605}} + 53\sqrt{13} e^{\sqrt{13}x^{2605}} + 91 \cos[1] + \sqrt{13} \cos[1] + 91 e^{\sqrt{13}x^{2605}} \cos[1] - \sqrt{13} e^{\sqrt{13}x^{2605}} \cos[1] - 182 e^{\frac{1}{2}(1+\sqrt{13})x^{2605}} \cos[1 - 2x^{2605}] + 26 \sin[1] - 30\sqrt{13} \sin[1] + 26 e^{\sqrt{13}x^{2605}} \sin[1] + 30\sqrt{13} e^{\sqrt{13}x^{2605}} \sin[1] - 52 e^{\frac{1}{2}(1+\sqrt{13})x^{2605}} \sin[1 - 2x^{2605}]))$$



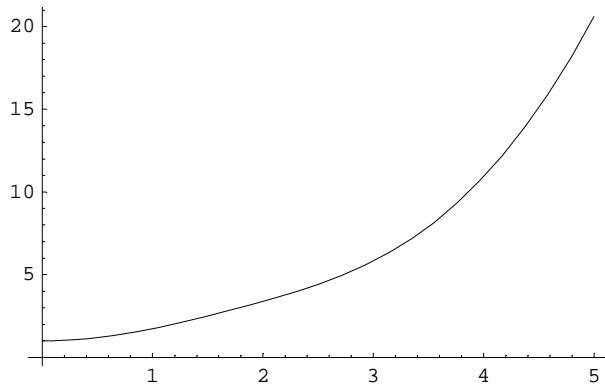
k1 = 1 k2 = -2 / y[x] =

$$\frac{1}{60} e^{-2x^{2633}} (20 + 40 e^{3x^{2633}} + 5 \cos[1] + 4 e^{3x^{2633}} \cos[1] - 9 e^{2x^{2633}} \cos[1 - 2x^{2633}] - 5 \sin[1] + 8 e^{3x^{2633}} \sin[1] - 3 e^{2x^{2633}} \sin[1 - 2x^{2633}])$$

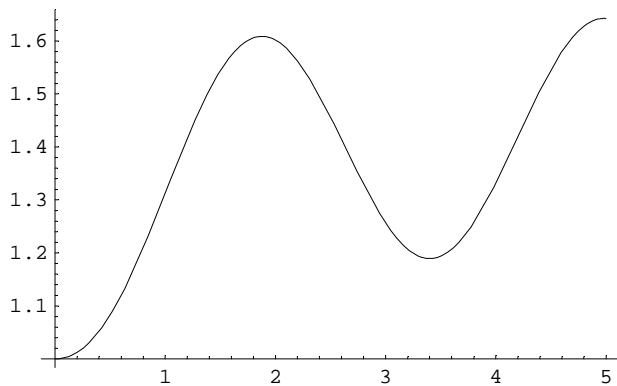


k1 = 1 k2 = -1 / y[x] =

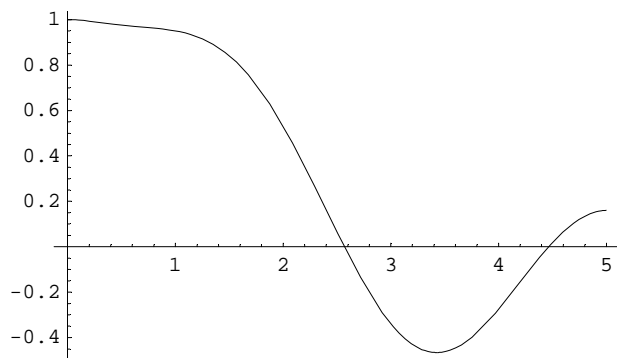
$$\frac{1}{290} e^{-\frac{1}{2}(1+\sqrt{5})x^{2655}} (145 - 29\sqrt{5} + 145 e^{\sqrt{5}x^{2655}} + 29\sqrt{5} e^{\sqrt{5}x^{2655}} + 25 \cos[1] + 3\sqrt{5} \cos[1] + 25 e^{\sqrt{5}x^{2655}} \cos[1] - 3\sqrt{5} e^{\sqrt{5}x^{2655}} \cos[1] - 50 e^{\frac{1}{2}(1+\sqrt{5})x^{2655}} \cos[1 - 2x^{2655}] + 10 \sin[1] - 22\sqrt{5} \sin[1] + 10 e^{\sqrt{5}x^{2655}} \sin[1] + 22\sqrt{5} e^{\sqrt{5}x^{2655}} \sin[1] - 20 e^{\frac{1}{2}(1+\sqrt{5})x^{2655}} \sin[1 - 2x^{2655}])$$



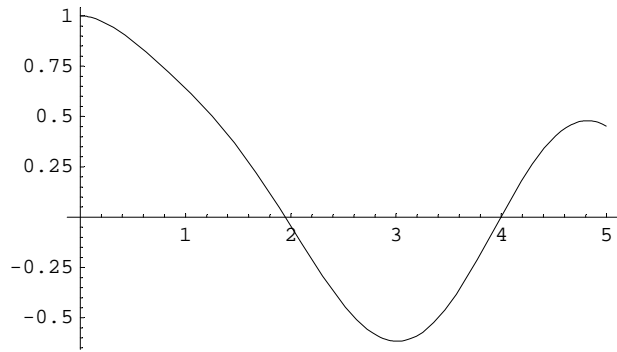
$k1 = 1 \quad k2 = 0 / \quad y[x] =$
 $\frac{1}{10} (10 + 2 e^{-x\$2683} \text{Cos}[1] - 2 \text{Cos}[1 - 2 x\$2683] + 5 \text{Sin}[1] - 4 e^{-x\$2683} \text{Sin}[1] - \text{Sin}[1 - 2 x\$2683])$



$k1 = 1 \quad k2 = 1 / \quad y[x] = \frac{1}{39} e^{-x\$2692/2}$
 $\left(-3 e^{x\$2692/2} \text{Cos}[x\$2692]^2 (3 \text{Cos}[1] + 2 \text{Sin}[1]) + \text{Cos}\left[\frac{\sqrt{3} x\$2692}{2}\right] (39 + 9 \text{Cos}[1] + 6 \text{Sin}[1]) + \right.$
 $9 e^{x\$2692/2} \text{Cos}[1] \text{Sin}[x\$2692]^2 + 6 e^{x\$2692/2} \text{Sin}[1] \text{Sin}[x\$2692]^2 +$
 $6 e^{x\$2692/2} \text{Cos}[1] \text{Sin}[2 x\$2692] - 9 e^{x\$2692/2} \text{Sin}[1] \text{Sin}[2 x\$2692] +$
 $\left. 13 \sqrt{3} \text{Sin}\left[\frac{\sqrt{3} x\$2692}{2}\right] - 5 \sqrt{3} \text{Cos}[1] \text{Sin}\left[\frac{\sqrt{3} x\$2692}{2}\right] + 14 \sqrt{3} \text{Sin}[1] \text{Sin}\left[\frac{\sqrt{3} x\$2692}{2}\right] \right)$



$k1 = 1 \quad k2 = 2 / \quad y[x] =$
 $\frac{1}{28} e^{-x\$2749/2} \left(-7 e^{x\$2749/2} \text{Cos}[x\$2749]^2 (\text{Cos}[1] + \text{Sin}[1]) + 7 \text{Cos}\left[\frac{\sqrt{7} x\$2749}{2}\right] (4 + \text{Cos}[1] + \text{Sin}[1]) + \right.$
 $7 e^{x\$2749/2} \text{Cos}[1] \text{Sin}[x\$2749]^2 + 7 e^{x\$2749/2} \text{Sin}[1] \text{Sin}[x\$2749]^2 +$
 $7 e^{x\$2749/2} \text{Cos}[1] \text{Sin}[2 x\$2749] - 7 e^{x\$2749/2} \text{Sin}[1] \text{Sin}[2 x\$2749] +$
 $\left. 4 \sqrt{7} \text{Sin}\left[\frac{\sqrt{7} x\$2749}{2}\right] - 3 \sqrt{7} \text{Cos}[1] \text{Sin}\left[\frac{\sqrt{7} x\$2749}{2}\right] + 5 \sqrt{7} \text{Sin}[1] \text{Sin}\left[\frac{\sqrt{7} x\$2749}{2}\right] \right)$



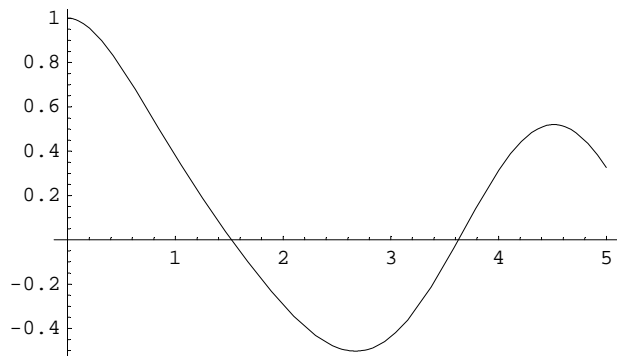
$$k1 = 1 \quad k2 = 3 / \quad y[x] = \frac{1}{55} e^{-x^{2806/2}}$$

$$\left(-11 e^{x^{2806/2}} \cos[x^{2806}]^2 (\cos[1] + 2 \sin[1]) + 11 \cos\left[\frac{\sqrt{11} x^{2806}}{2}\right] (5 + \cos[1] + 2 \sin[1]) + \right.$$

$$11 e^{x^{2806/2}} \cos[1] \sin[x^{2806}]^2 + 22 e^{x^{2806/2}} \sin[1] \sin[x^{2806}]^2 +$$

$$11 e^{x^{2806/2}} (2 \cos[1] - \sin[1]) \sin[2 x^{2806}] + 5 \sqrt{11} \sin\left[\frac{\sqrt{11} x^{2806}}{2}\right] -$$

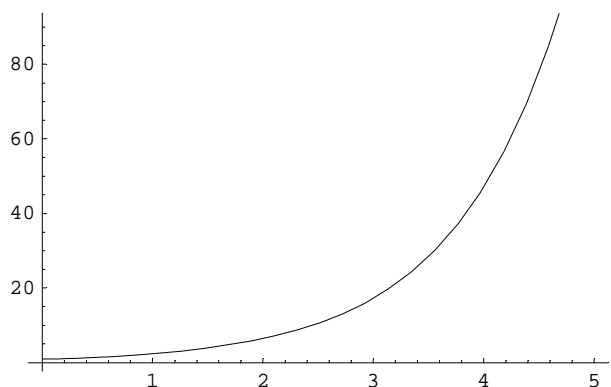
$$\left. 7 \sqrt{11} \cos[1] \sin\left[\frac{\sqrt{11} x^{2806}}{2}\right] + 6 \sqrt{11} \sin[1] \sin\left[\frac{\sqrt{11} x^{2806}}{2}\right] \right)$$



$$k1 = 2 \quad k2 = -3 / \quad y[x] =$$

$$\frac{1}{260} e^{-3 x^{2863}} (65 + 195 e^{4 x^{2863}} + 15 \cos[1] + 13 e^{4 x^{2863}} \cos[1] - 28 e^{3 x^{2863}} \cos[1 - 2 x^{2863}] -$$

$$10 \sin[1] + 26 e^{4 x^{2863}} \sin[1] - 16 e^{3 x^{2863}} \sin[1 - 2 x^{2863}])$$

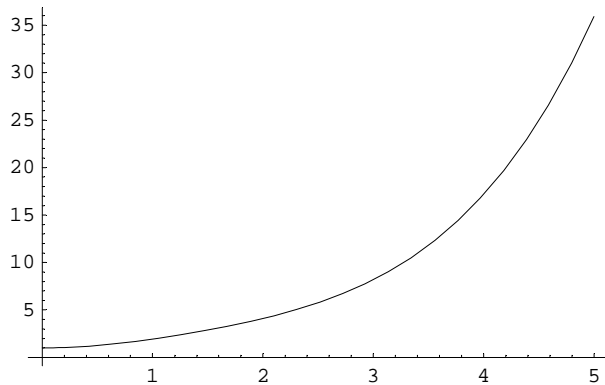


$$k1 = 2 \quad k2 = -2 / \quad y[x] =$$

$$\frac{1}{156} e^{-(1+\sqrt{3}) x^{2885}} (78 - 26 \sqrt{3} + 78 e^{2\sqrt{3} x^{2885}} + 26 \sqrt{3} e^{2\sqrt{3} x^{2885}} + 9 \cos[1] + \sqrt{3} \cos[1] +$$

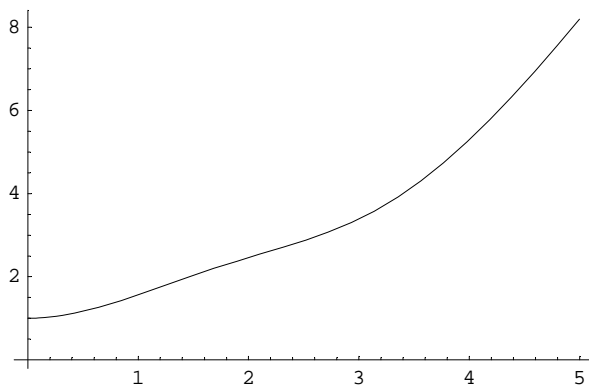
$$9 e^{2\sqrt{3} x^{2885}} \cos[1] - \sqrt{3} e^{2\sqrt{3} x^{2885}} \cos[1] - 18 e^{x^{2885}+\sqrt{3} x^{2885}} \cos[1 - 2 x^{2885}] + 6 \sin[1] -$$

$$8 \sqrt{3} \sin[1] + 6 e^{2\sqrt{3} x^{2885}} \sin[1] + 8 \sqrt{3} e^{2\sqrt{3} x^{2885}} \sin[1] - 12 e^{x^{2885}+\sqrt{3} x^{2885}} \sin[1 - 2 x^{2885}])$$



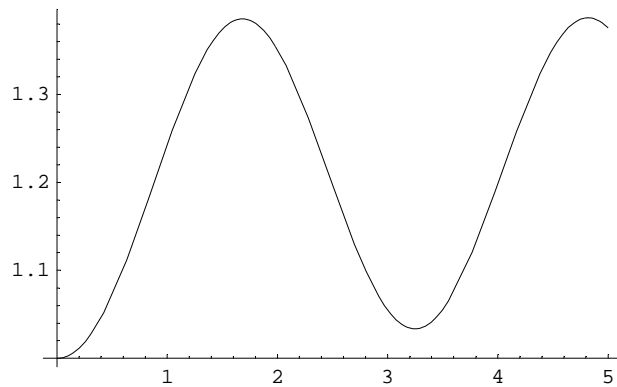
$$k1 = 2 \quad k2 = -1 / \quad y[x] =$$

$$\frac{1}{164} e^{-(1+\sqrt{2})x^{2930}} \left(82 - 41\sqrt{2} + 82 e^{2\sqrt{2}x^{2930}} + 41\sqrt{2} e^{2\sqrt{2}x^{2930}} + 10 \cos[1] + 3\sqrt{2} \cos[1] + \right. \\ \left. 10 e^{2\sqrt{2}x^{2930}} \cos[1] - 3\sqrt{2} e^{2\sqrt{2}x^{2930}} \cos[1] - 20 e^{x^{2930}+\sqrt{2}x^{2930}} \cos[1 - 2x^{2930}] + 8 \sin[1] - \right. \\ \left. 14\sqrt{2} \sin[1] + 8 e^{2\sqrt{2}x^{2930}} \sin[1] + 14\sqrt{2} e^{2\sqrt{2}x^{2930}} \sin[1] - 16 e^{x^{2930}+\sqrt{2}x^{2930}} \sin[1 - 2x^{2930}] \right)$$



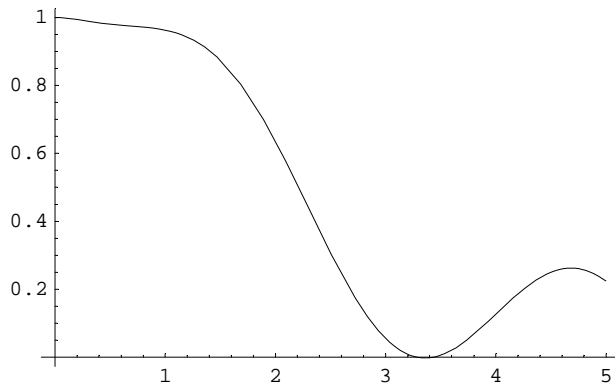
$$k1 = 2 \quad k2 = 0 / \quad y[x] =$$

$$\frac{1}{8} \left(8 + e^{-2x^{2975}} \cos[1] - \cos[1 - 2x^{2975}] + 2 \sin[1] - e^{-2x^{2975}} \sin[1] - \sin[1 - 2x^{2975}] \right)$$

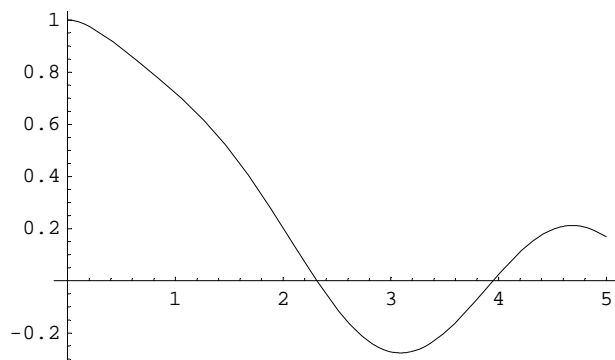


$$k1 = 2 \quad k2 = 1 / \quad y[x] =$$

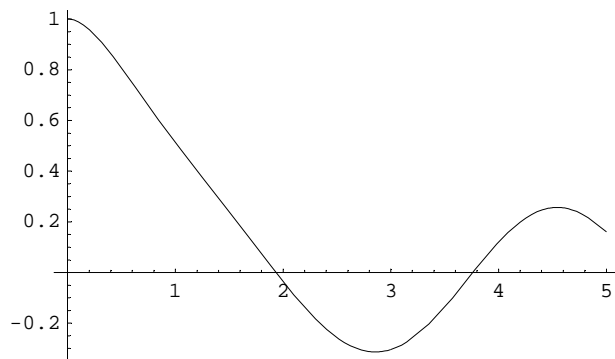
$$\frac{1}{25} e^{-x^{2984}} \left(25 + 25x^{2984} + 3 \cos[1] - 5x^{2984} \cos[1] - 3 e^{x^{2984}} \cos[1 - 2x^{2984}] + \right. \\ \left. 4 \sin[1] + 10x^{2984} \sin[1] - 4 e^{x^{2984}} \sin[1 - 2x^{2984}] \right)$$



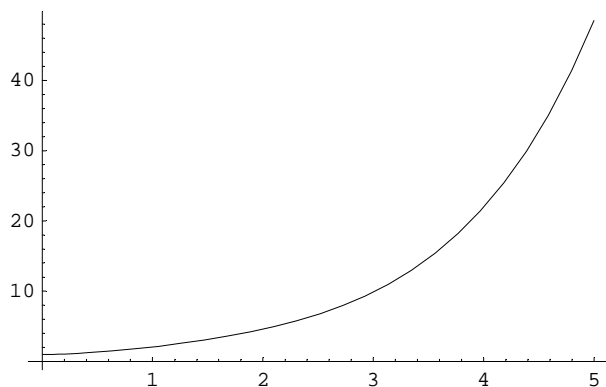
$$k1 = 2 \quad k2 = 2 \quad / \quad y[x] = -\frac{1}{20} e^{-x^{3001}} (2 e^{x^{3001}} \cos[1 - 2 x^{3001}] - 5 \cos[1 - x^{3001}] - 20 \cos[x^{3001}] + 3 \cos[1 + x^{3001}] + 4 e^{x^{3001}} \sin[1 - 2 x^{3001}] - 5 \sin[1 - x^{3001}] - 20 \sin[x^{3001}] + \sin[1 + x^{3001}])$$



$$k1 = 2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{34} e^{-x^{3029}} (-2 e^{x^{3029}} \cos[x^{3029}]^2 (\cos[1] + 4 \sin[1]) + 2 \cos[\sqrt{2} x^{3029}] (17 + \cos[1] + 4 \sin[1]) - 4 e^{x^{3029}} \cos[x^{3029}] \sin[1] \sin[x^{3029}] + 2 e^{x^{3029}} \cos[1] \sin[x^{3029}]^2 + 8 e^{x^{3029}} \sin[1] \sin[x^{3029}]^2 + 8 e^{x^{3029}} \cos[1] \sin[2 x^{3029}] + 17 \sqrt{2} \sin[\sqrt{2} x^{3029}] - 7 \sqrt{2} \cos[1] \sin[\sqrt{2} x^{3029}] + 6 \sqrt{2} \sin[1] \sin[\sqrt{2} x^{3029}])$$

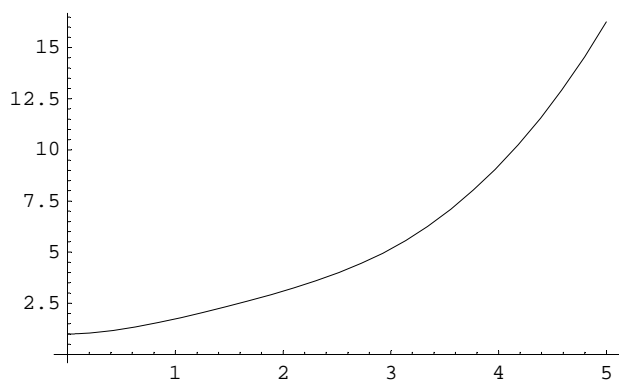


$$k1 = 3 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{3570} (e^{\frac{1}{2} (3+\sqrt{21}) x^{3080}} (1785 - 255 \sqrt{21} + 1785 e^{\sqrt{21} x^{3080}} + 255 \sqrt{21} e^{\sqrt{21} x^{3080}} + 147 \cos[1] + 3 \sqrt{21} \cos[1] + 147 e^{\sqrt{21} x^{3080}} \cos[1] - 3 \sqrt{21} e^{\sqrt{21} x^{3080}} \cos[1] - 294 e^{\frac{1}{2} (3+\sqrt{21}) x^{3080}} \cos[1 - 2 x^{3080}] + 126 \sin[1] - 46 \sqrt{21} \sin[1] + 126 e^{\sqrt{21} x^{3080}} \sin[1] + 46 \sqrt{21} e^{\sqrt{21} x^{3080}} \sin[1] - 252 e^{\frac{1}{2} (3+\sqrt{21}) x^{3080}} \sin[1 - 2 x^{3080}]))$$



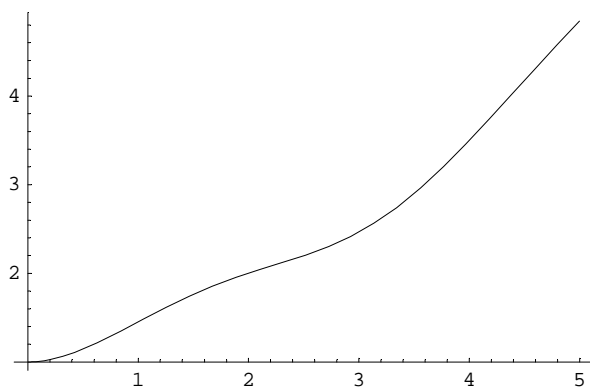
$$k1 = 3 \quad k2 = -2 / \quad y[x] =$$

$$\frac{1}{408} e^{-\frac{1}{2} (3+\sqrt{17}) x^{3108}} \left(204 - 36 \sqrt{17} + 204 e^{\sqrt{17} x^{3108}} + 36 \sqrt{17} e^{\sqrt{17} x^{3108}} + 17 \cos[1] + \sqrt{17} \cos[1] + \right. \\ \left. 17 e^{\sqrt{17} x^{3108}} \cos[1] - \sqrt{17} e^{\sqrt{17} x^{3108}} \cos[1] - 34 e^{\frac{1}{2} (3+\sqrt{17}) x^{3108}} \cos[1 - 2 x^{3108}] + 17 \sin[1] - \right. \\ \left. 7 \sqrt{17} \sin[1] + 17 e^{\sqrt{17} x^{3108}} \sin[1] + 7 \sqrt{17} e^{\sqrt{17} x^{3108}} \sin[1] - 34 e^{\frac{1}{2} (3+\sqrt{17}) x^{3108}} \sin[1 - 2 x^{3108}] \right)$$



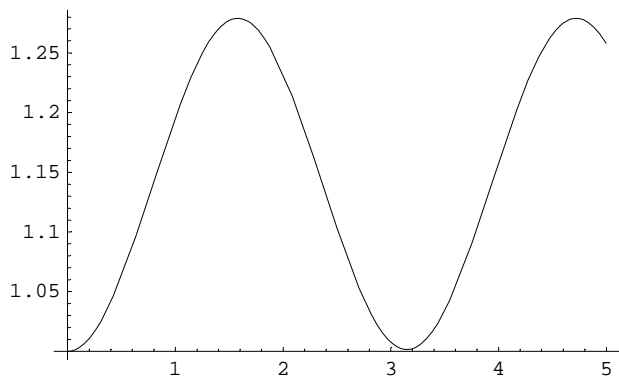
$$k1 = 3 \quad k2 = -1 / \quad y[x] =$$

$$\frac{1}{1586} \left(e^{-\frac{1}{2} (3+\sqrt{13}) x^{3136}} \left(793 - 183 \sqrt{13} + 793 e^{\sqrt{13} x^{3136}} + 183 \sqrt{13} e^{\sqrt{13} x^{3136}} + 65 \cos[1] + \right. \right. \\ \left. \left. 9 \sqrt{13} \cos[1] + 65 e^{\sqrt{13} x^{3136}} \cos[1] - 9 \sqrt{13} e^{\sqrt{13} x^{3136}} \cos[1] - \right. \right. \\ \left. \left. 130 e^{\frac{1}{2} (3+\sqrt{13}) x^{3136}} \cos[1 - 2 x^{3136}] + 78 \sin[1] - 38 \sqrt{13} \sin[1] + 78 e^{\sqrt{13} x^{3136}} \sin[1] + \right. \right. \\ \left. \left. 38 \sqrt{13} e^{\sqrt{13} x^{3136}} \sin[1] - 156 e^{\frac{1}{2} (3+\sqrt{13}) x^{3136}} \sin[1 - 2 x^{3136}] \right) \right)$$

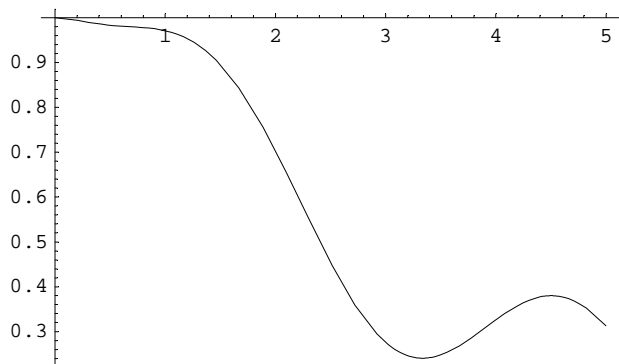


$$k1 = 3 \quad k2 = 0 / \quad y[x] =$$

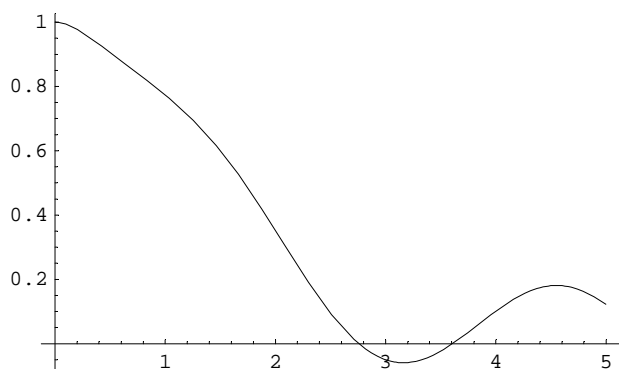
$$\frac{1}{78} \left(78 + 6 e^{-3 x^{3164}} \cos[1] - 6 \cos[1 - 2 x^{3164}] + 13 \sin[1] - 4 e^{-3 x^{3164}} \sin[1] - 9 \sin[1 - 2 x^{3164}] \right)$$



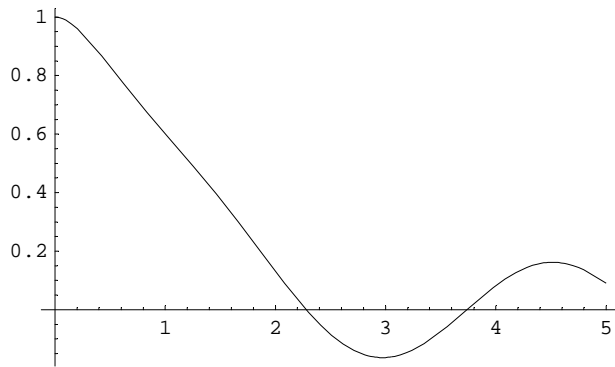
$$k1 = 3 \quad k2 = 1 / \quad y[x] = \frac{1}{30} e^{-\frac{1}{2} (3+\sqrt{5}) x^{3175}} (15 - 9\sqrt{5} + 15 e^{\sqrt{5} x^{3175}} + 9\sqrt{5} e^{\sqrt{5} x^{3175}} + \cos[1] + \sqrt{5} \cos[1] + e^{\sqrt{5} x^{3175}} \cos[1] - \sqrt{5} e^{\sqrt{5} x^{3175}} \cos[1] - 2 e^{\frac{1}{2} (3+\sqrt{5}) x^{3175}} \cos[1 - 2 x^{3175}] + 2 \sin[1] - 2\sqrt{5} \sin[1] + 2 e^{\sqrt{5} x^{3175}} \sin[1] + 2\sqrt{5} e^{\sqrt{5} x^{3175}} \sin[1] - 4 e^{\frac{1}{2} (3+\sqrt{5}) x^{3175}} \sin[1 - 2 x^{3175}])$$



$$k1 = 3 \quad k2 = 2 / \quad y[x] = -\frac{1}{20} e^{-2 x^{3203}} (20 - 40 e^{x^{3203}} - 5 \cos[1] + 4 e^{x^{3203}} \cos[1] + e^{2 x^{3203}} \cos[1 - 2 x^{3203}] + 5 \sin[1] - 8 e^{x^{3203}} \sin[1] + 3 e^{2 x^{3203}} \sin[1 - 2 x^{3203}])$$



$$k1 = 3 \quad k2 = 3 / \quad y[x] = \frac{1}{111} e^{-3 x^{3220/2}} \left(-3 e^{3 x^{3220/2}} \cos[x^{3220}]^2 (\cos[1] + 6 \sin[1]) + 3 \cos\left[\frac{\sqrt{3} x^{3220}}{2}\right] (37 + \cos[1] + 6 \sin[1]) + 36 e^{3 x^{3220/2}} \cos[1] \cos[x^{3220}] \sin[x^{3220}] + 3 e^{3 x^{3220/2}} (\cos[1] + 6 \sin[1]) \sin[x^{3220}]^2 - 3 e^{3 x^{3220/2}} \sin[1] \sin[2 x^{3220}] + 111 \sqrt{3} \sin\left[\frac{\sqrt{3} x^{3220}}{2}\right] - 21 \sqrt{3} \cos[1] \sin\left[\frac{\sqrt{3} x^{3220}}{2}\right] + 22 \sqrt{3} \sin[1] \sin\left[\frac{\sqrt{3} x^{3220}}{2}\right] \right)$$

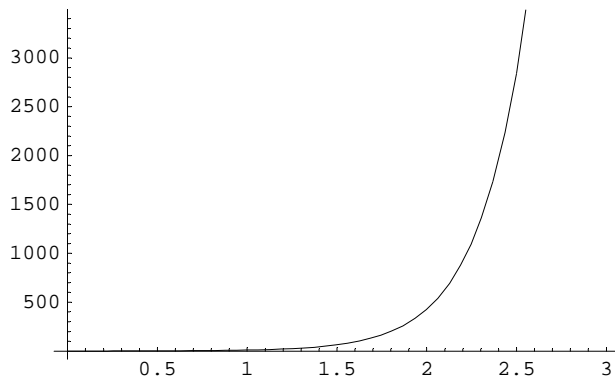


v

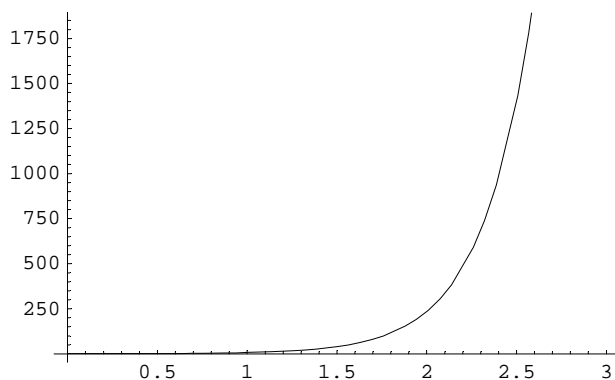
```
Remove["Global`*"];
m6[k1_,k2_,y0_,y1_]:=Module[{x,y},
solv =
DSolve[{y'[x]+ k1 y'[x]+ k2 y[x]==E^(-x), y[0]==y0, y'[0]==y1},y,x];
y = y/.solv[[1]];
Print["k1 = ",k1," k2 = ",k2, " / y[x] = ",y[x]//Simplify];
Plot[y[x],{x,0,3}]];
```

```
Table[m6[k1,k2,1,0],{k1,-3,3},{k2,-3,3}];
```

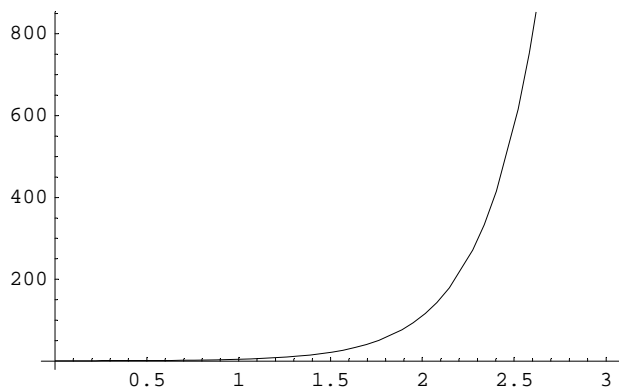
$$k1 = -3 \quad k2 = -3 \quad / \quad y[x] = e^{-x^{3271}} - \frac{e^{-\frac{1}{2}(-3+\sqrt{21})x^{3271}}}{\sqrt{21}} + \frac{e^{\frac{1}{2}(3+\sqrt{21})x^{3271}}}{\sqrt{21}}$$



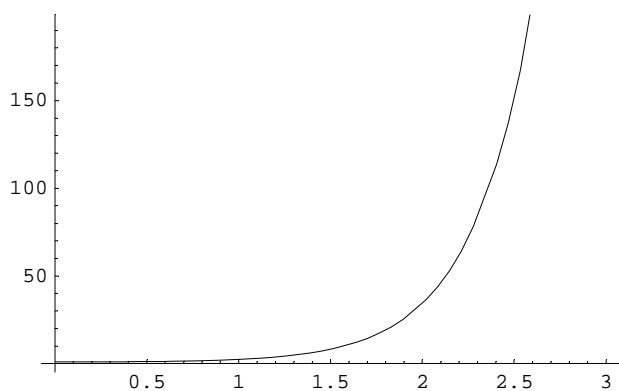
$$k1 = -3 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{68} e^{-\frac{1}{2}(5+\sqrt{17})x^{3298}} \left((17+\sqrt{17}) e^{4x^{3298}} + 34 e^{\frac{1}{2}(3+\sqrt{17})x^{3298}} - (-17+\sqrt{17}) e^{(4+\sqrt{17})x^{3298}} \right)$$



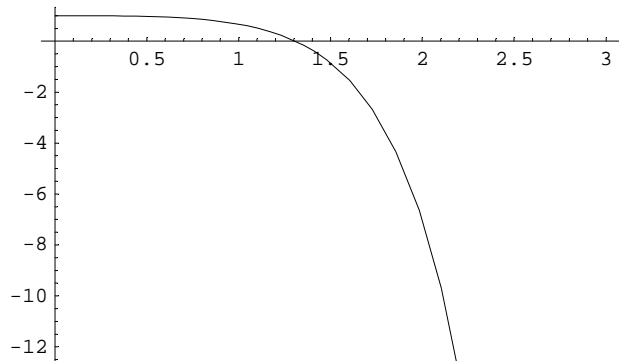
$$k1 = -3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{39} e^{-\frac{1}{2}(5+\sqrt{13})x^{3326}} \left((13+2\sqrt{13}) e^{4x^{3326}} + 13 e^{\frac{1}{2}(3+\sqrt{13})x^{3326}} + (13-2\sqrt{13}) e^{(4+\sqrt{13})x^{3326}} \right)$$



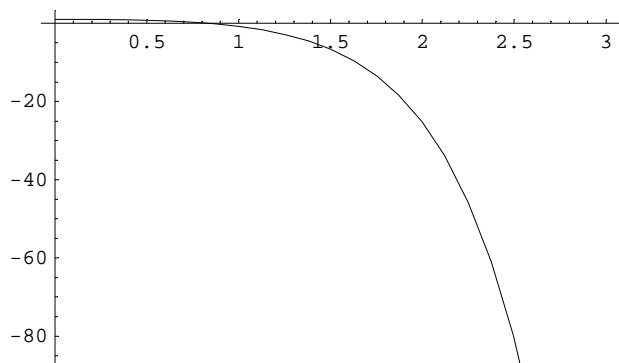
$$k1 = -3 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{12} e^{-x^{3354}} (3 + 8 e^{x^{3354}} + e^{4x^{3354}})$$



$$k1 = -3 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{5} e^{-\frac{1}{2}(5+\sqrt{5})x^{3363}} \left((2+\sqrt{5}) e^{4x^{3363}} + e^{\frac{1}{2}(3+\sqrt{5})x^{3363}} - (-2+\sqrt{5}) e^{(4+\sqrt{5})x^{3363}} \right)$$

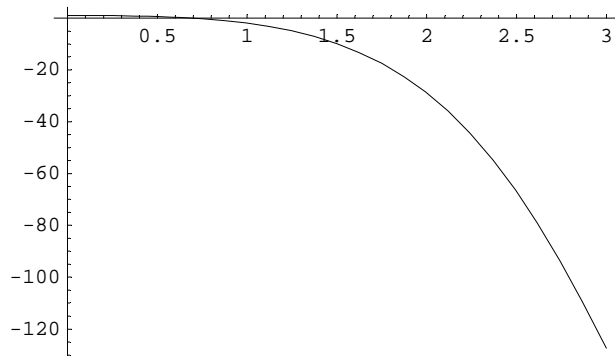


$$k1 = -3 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{6} e^{-x^{3391}} (1 + 9 e^{2x^{3391}} - 4 e^{3x^{3391}})$$

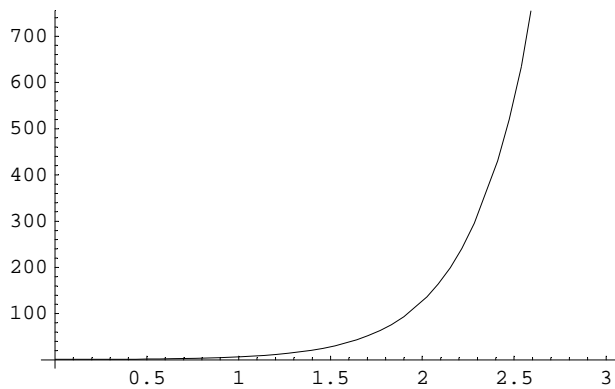


$$k1 = -3 \quad k2 = 3 \quad / \quad y[x] =$$

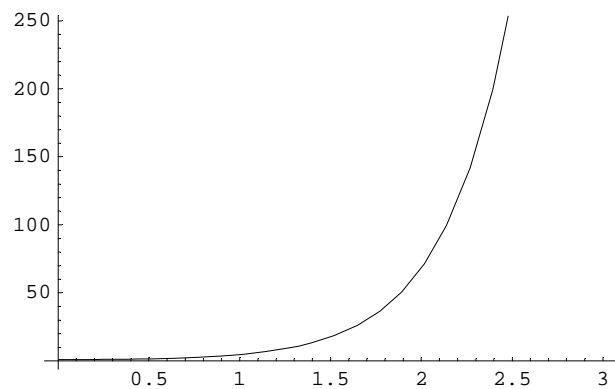
$$\frac{1}{21} e^{-x^{3407}} \left(3 + 18 e^{5x^{3407/2}} \cos\left[\frac{\sqrt{3} x^{3407}}{2}\right] - 16 \sqrt{3} e^{5x^{3407/2}} \sin\left[\frac{\sqrt{3} x^{3407}}{2}\right] \right)$$



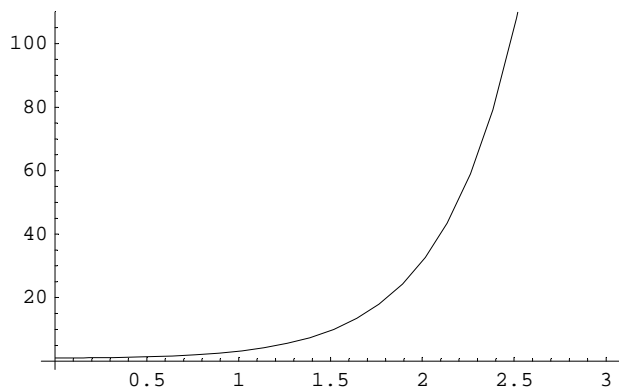
$$k1 = -2 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{16} e^{-x^{3436}} (11 + 5 e^{4x^{3436}} - 4 x^{3436})$$



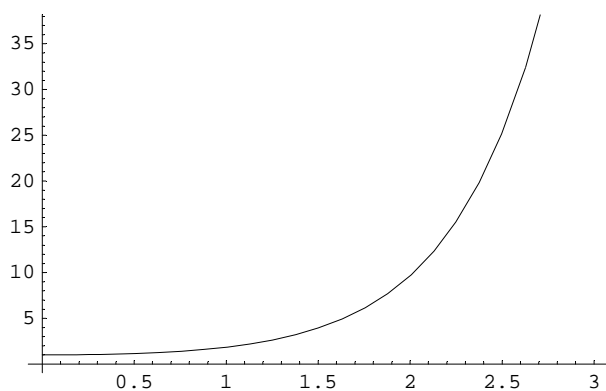
$$k1 = -2 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{6} e^{-(2+\sqrt{3})x^{3456}} \left(-\sqrt{3} e^{3x^{3456}} + 6 e^{(1+\sqrt{3})x^{3456}} + \sqrt{3} e^{(3+2\sqrt{3})x^{3456}} \right)$$



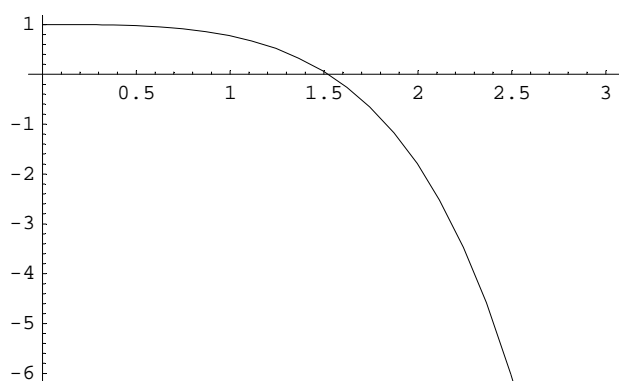
$$k1 = -2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{4} e^{-(2+\sqrt{2})x^{3483}} \left(e^{3x^{3483}} + 2 e^{(1+\sqrt{2})x^{3483}} + e^{(3+2\sqrt{2})x^{3483}} \right)$$



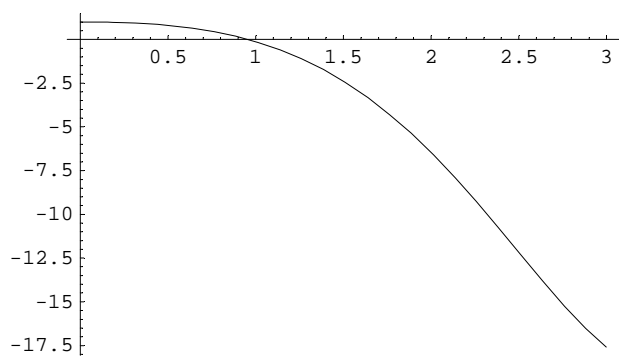
$$k1 = -2 \quad k2 = 0 / \quad y[x] = \frac{1}{6} e^{-x^{3510}} (2 + 3 e^{x^{3510}} + e^{3 x^{3510}})$$



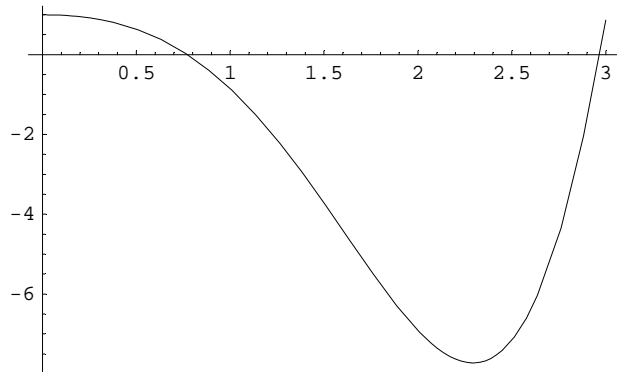
$$k1 = -2 \quad k2 = 1 / \quad y[x] = \frac{1}{4} e^{-x^{3519}} (1 + e^{2 x^{3519}} (3 - 2 x^{3519}))$$



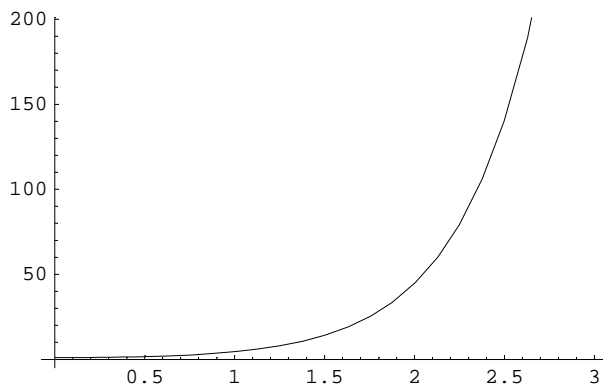
$$k1 = -2 \quad k2 = 2 / \quad y[x] = \frac{1}{5} (e^{-x^{3535}} + 4 e^{x^{3535}} \text{Cos}[x^{3535}] - 3 e^{x^{3535}} \text{Sin}[x^{3535}])$$



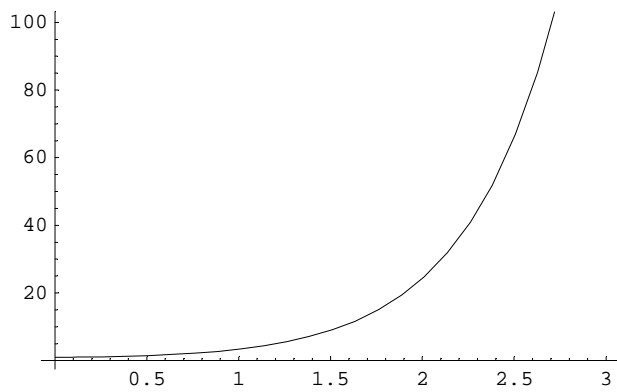
$$k1 = -2 \quad k2 = 3 / \quad y[x] = \frac{1}{6} (e^{-x^{3556}} + 5 e^{x^{3556}} \text{Cos}[\sqrt{2} x^{3556}] - 2 \sqrt{2} e^{x^{3556}} \text{Sin}[\sqrt{2} x^{3556}])$$



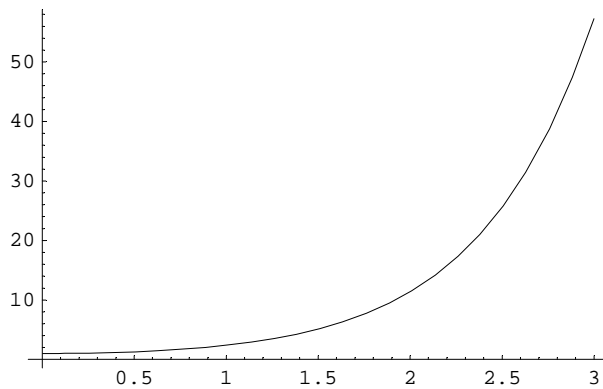
$k_1 = -1 \quad k_2 = -3 \quad / \quad y[x] = \frac{1}{52} e^{-\frac{1}{2}(3+\sqrt{13})x} \left((52 + 8\sqrt{13}) e^{2x} - 52 e^{\frac{1}{2}(1+\sqrt{13})x} + (52 - 8\sqrt{13}) e^{(2+\sqrt{13})x} \right)$



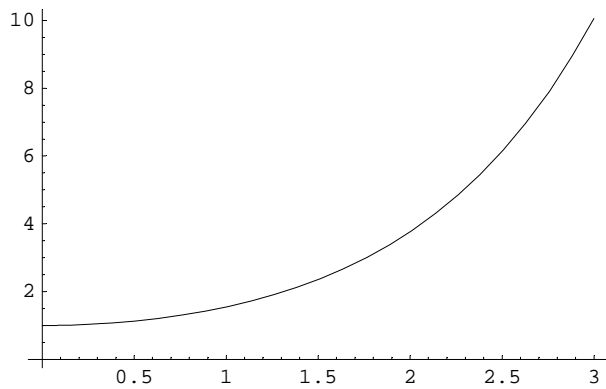
$k_1 = -1 \quad k_2 = -2 \quad / \quad y[x] = \frac{1}{9} e^{-x} (5 + 4 e^{3x} - 3 x^3)$



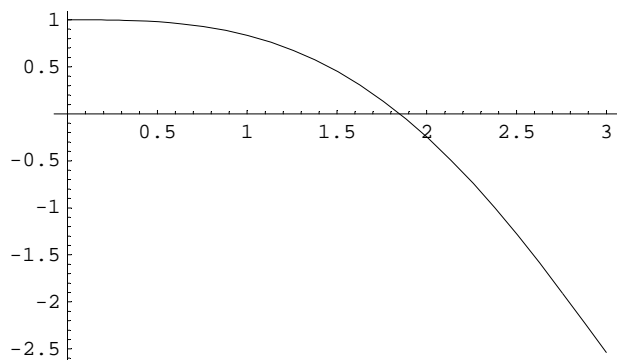
$k_1 = -1 \quad k_2 = -1 \quad / \quad y[x] = e^{-x} + \frac{e^{\frac{1}{2}(1+\sqrt{5})x}}{\sqrt{5}} - \frac{e^{\frac{1}{2}(1-\sqrt{5})x}}{\sqrt{5}}$



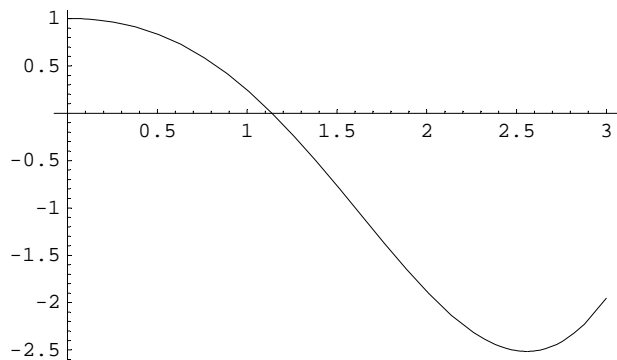
$$k1 = -1 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{2} e^{-x^{3649}} (1 + e^{2x^{3649}})$$



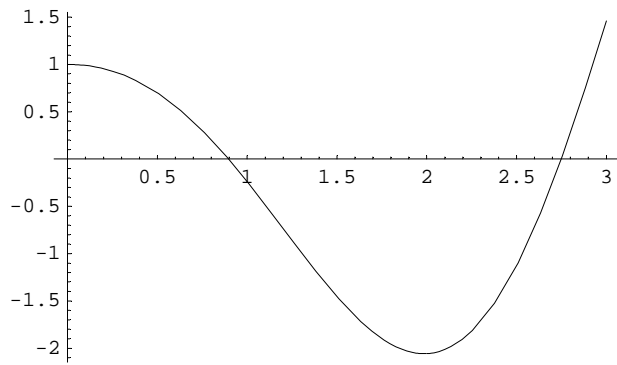
$$k1 = -1 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{3} \left(e^{-x^{3658}} + 2 e^{x^{3658/2}} \cos\left[\frac{\sqrt{3} x^{3658}}{2}\right] \right)$$



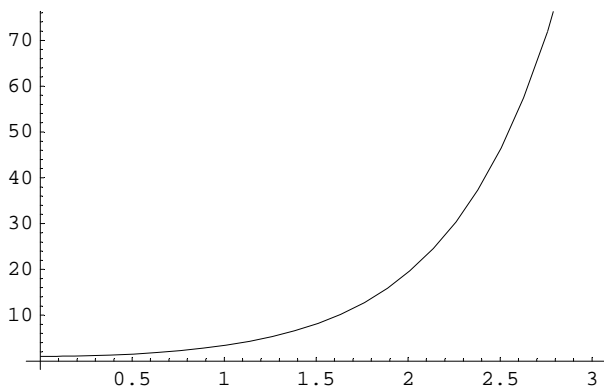
$$k1 = -1 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{28} e^{-x^{3684}} \left(7 + 21 e^{3x^{3684/2}} \cos\left[\frac{\sqrt{7} x^{3684}}{2}\right] - \sqrt{7} e^{3x^{3684/2}} \sin\left[\frac{\sqrt{7} x^{3684}}{2}\right] \right)$$



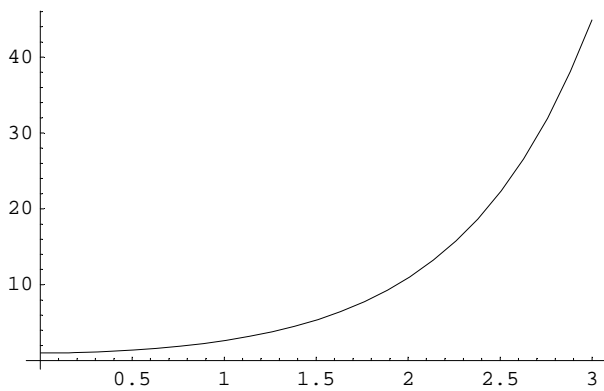
$$k1 = -1 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{55} e^{-x^{3710}} \left(11 + 44 e^{3x^{3710/2}} \cos\left[\frac{\sqrt{11} x^{3710}}{2}\right] - 2\sqrt{11} e^{3x^{3710/2}} \sin\left[\frac{\sqrt{11} x^{3710}}{2}\right] \right)$$



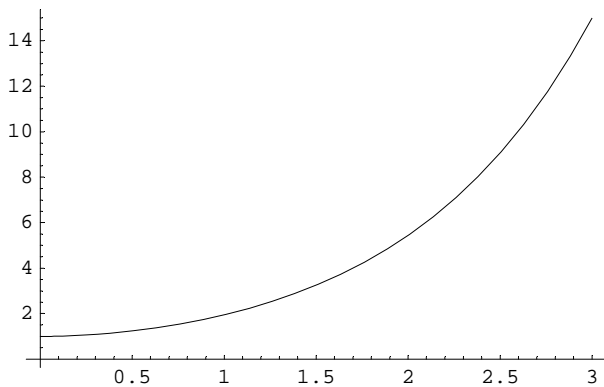
$k_1 = 0 \quad k_2 = -3 / \quad y[x] = \frac{1}{12} e^{-(1+2\sqrt{3})x} (-6 e^{2\sqrt{3}x} + (9 + \sqrt{3}) e^{(1+\sqrt{3})x} - (-9 + \sqrt{3}) e^{x(3+\sqrt{3})})$



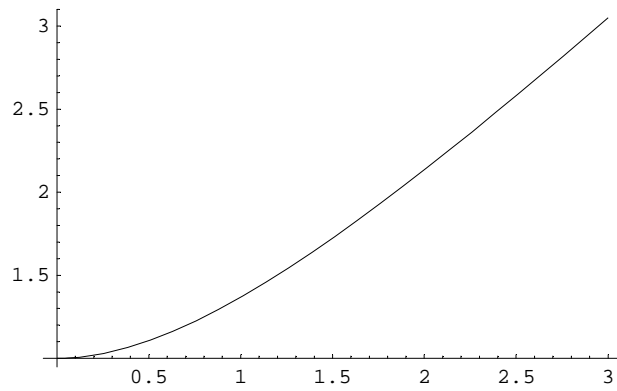
$k_1 = 0 \quad k_2 = -2 / \quad y[x] = \frac{1}{4} e^{-(1+2\sqrt{2})x} (-4 e^{2\sqrt{2}x} + (4 + \sqrt{2}) e^{(1+\sqrt{2})x} - (-4 + \sqrt{2}) e^{x(3+\sqrt{2})})$



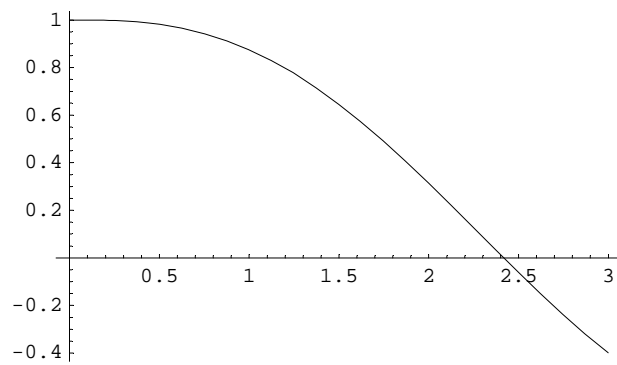
$k_1 = 0 \quad k_2 = -1 / \quad y[x] = \frac{1}{4} e^{-x} (1 + 3 e^{2x} - 2 x)$



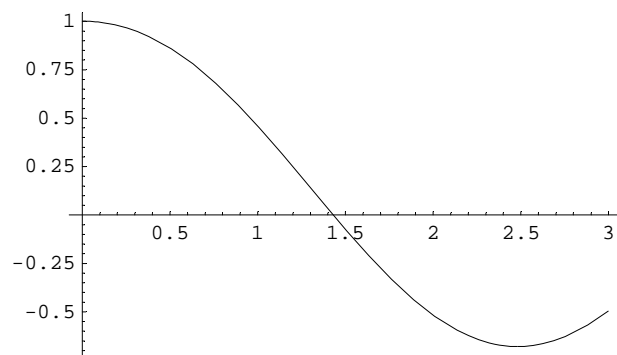
$$k1 = 0 \quad k2 = 0 / \quad y[x] = e^{-x^{3770}} + x^{3770}$$



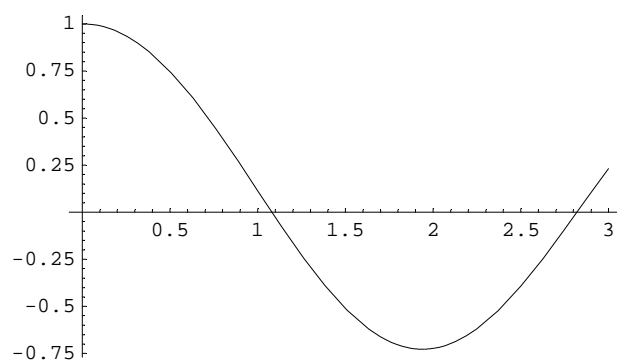
$$k1 = 0 \quad k2 = 1 / \quad y[x] = \frac{1}{2} (e^{-x^{3778}} + \cos[x^{3778}] + \sin[x^{3778}])$$



$$k1 = 0 \quad k2 = 2 / \quad y[x] = \frac{1}{6} (2 e^{-x^{3786}} + 4 \cos[\sqrt{2} x^{3786}] + \sqrt{2} \sin[\sqrt{2} x^{3786}])$$

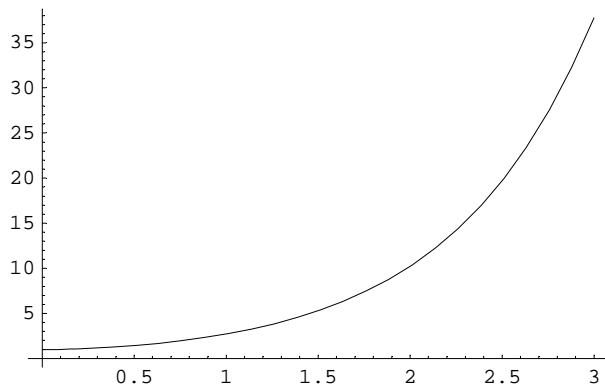


$$k1 = 0 \quad k2 = 3 / \quad y[x] = \frac{1}{12} (3 e^{-x^{3794}} + 9 \cos[\sqrt{3} x^{3794}] + \sqrt{3} \sin[\sqrt{3} x^{3794}])$$

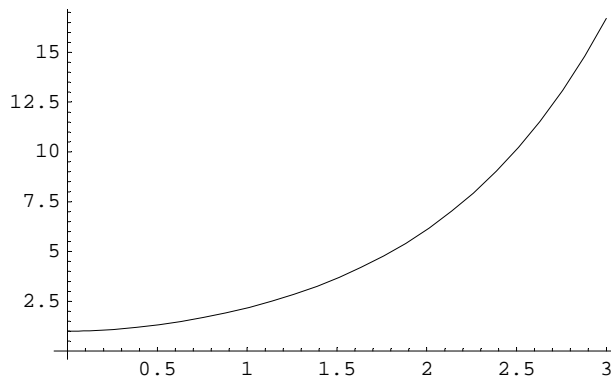


$$k1 = 1 \quad k2 = -3 \quad / \quad y[x] =$$

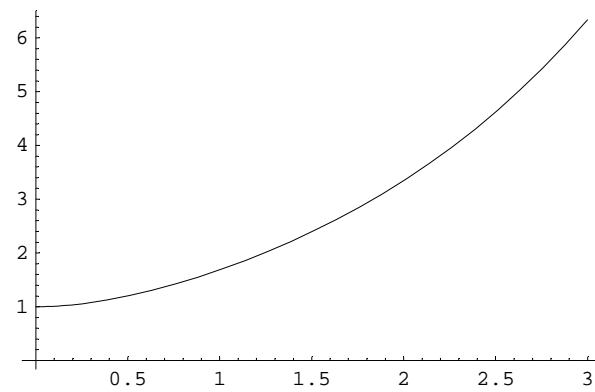
$$\frac{1}{39} e^{-\frac{1}{2}(3+\sqrt{13})x} (-(-26+\sqrt{13})e^{x} - 13e^{\frac{1}{2}(1+\sqrt{13})x} + (26+\sqrt{13})e^{x+\sqrt{13}x})$$



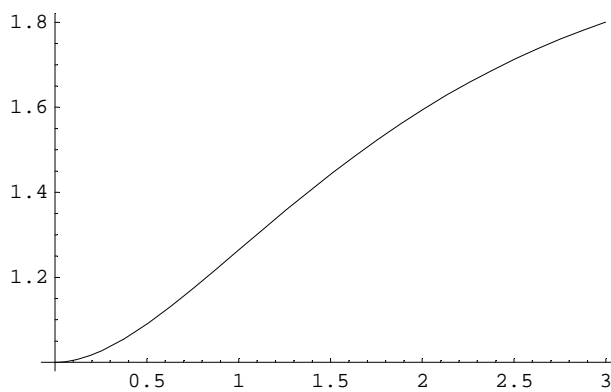
$$k1 = 1 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{6} e^{-2x} (4 - 3e^{x} + 5e^{3x})$$



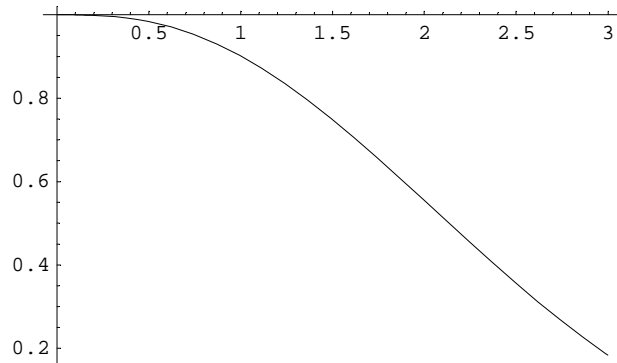
$$k1 = 1 \quad k2 = -1 \quad / \quad y[x] = -e^{-x} + e^{\frac{1}{2}(-1+\sqrt{5})x} + e^{-\frac{1}{2}(1+\sqrt{5})x}$$



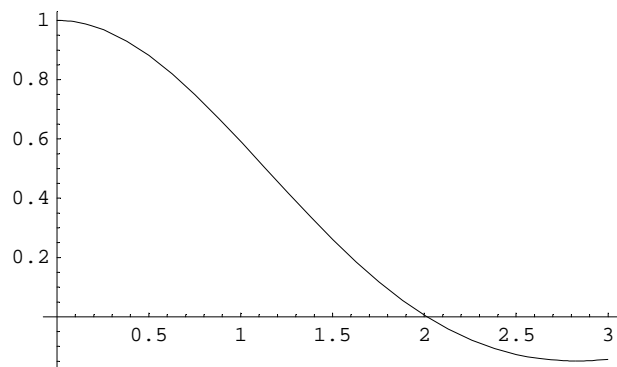
$$k1 = 1 \quad k2 = 0 \quad / \quad y[x] = e^{-x} (-1 + 2e^{x} - x)$$



$$k1 = 1 \quad k2 = 1 / \quad y[x] = e^{-x\$3884} + \frac{2 e^{-x\$3884/2} \operatorname{Sin}\left[\frac{\sqrt{3} x\$3884}{2}\right]}{\sqrt{3}}$$

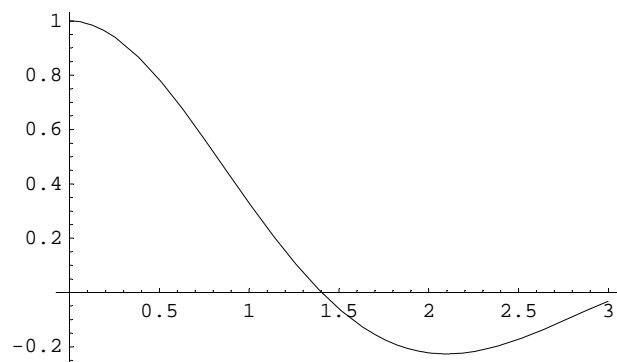


$$k1 = 1 \quad k2 = 2 / \quad y[x] = \frac{1}{14} e^{-x\$3923} \left(7 + 7 e^{x\$3923/2} \operatorname{Cos}\left[\frac{\sqrt{7} x\$3923}{2}\right] + 3 \sqrt{7} e^{x\$3923/2} \operatorname{Sin}\left[\frac{\sqrt{7} x\$3923}{2}\right] \right)$$

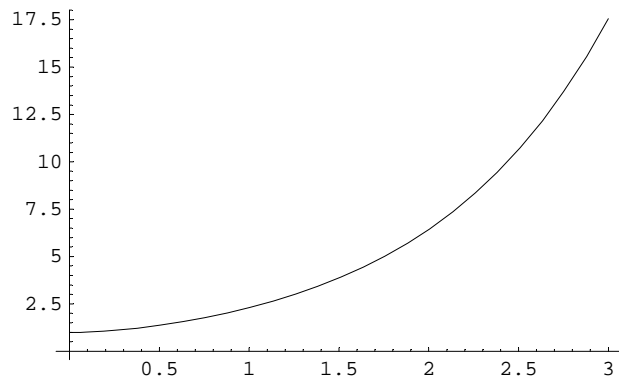


$$k1 = 1 \quad k2 = 3 / \quad y[x] =$$

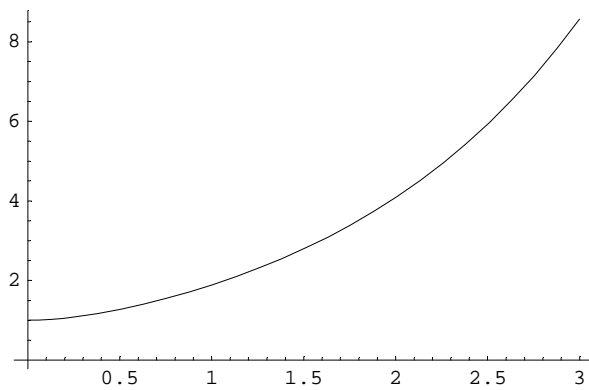
$$\frac{1}{33} e^{-x\$3962} \left(11 + 22 e^{x\$3962/2} \operatorname{Cos}\left[\frac{\sqrt{11} x\$3962}{2}\right] + 4 \sqrt{11} e^{x\$3962/2} \operatorname{Sin}\left[\frac{\sqrt{11} x\$3962}{2}\right] \right)$$



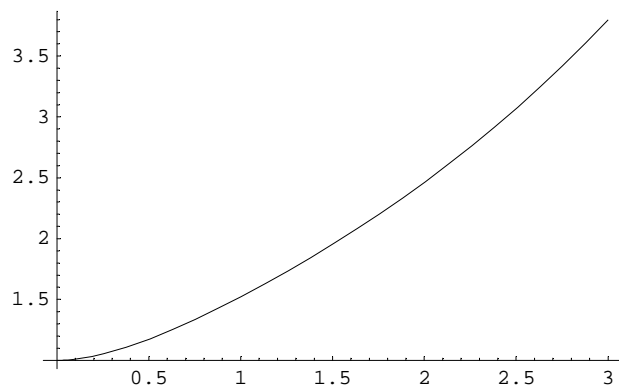
$$k1 = 2 \quad k2 = -3 / \quad y[x] = \frac{1}{8} e^{-3 x\$4010} (3 - 2 e^{2 x\$4010} + 7 e^{4 x\$4010})$$



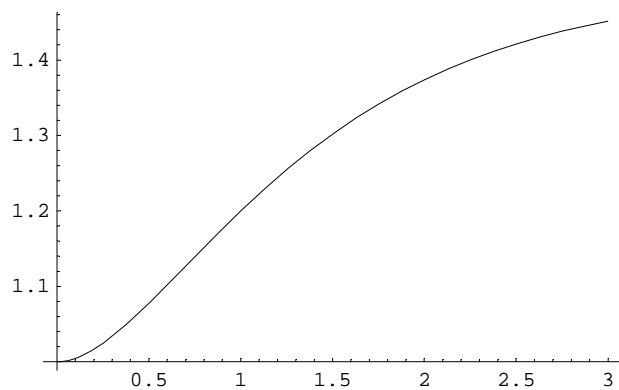
$$k1 = 2 \quad k2 = -2 \quad / \quad y[x] = \frac{1}{6} e^{-(1+\sqrt{3})x} (4 - \sqrt{3} - 2 e^{\sqrt{3}x} + (4 + \sqrt{3}) e^{2\sqrt{3}x})$$



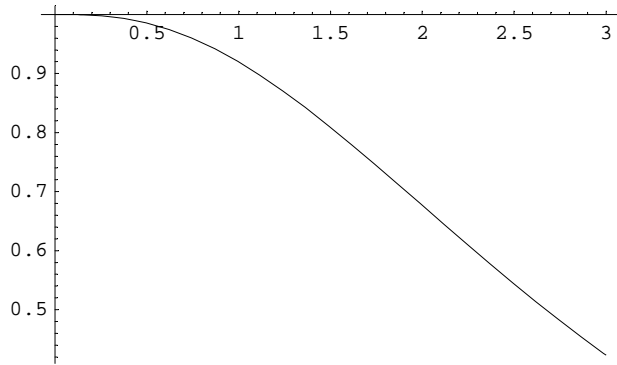
$$k1 = 2 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{4} e^{-(1+\sqrt{2})x} (3 - \sqrt{2} - 2 e^{\sqrt{2}x} + (3 + \sqrt{2}) e^{2\sqrt{2}x})$$



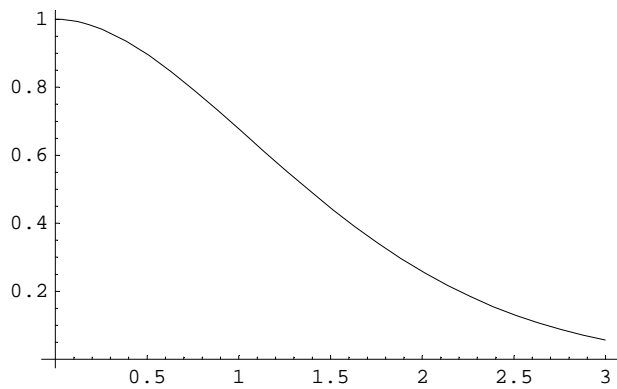
$$k1 = 2 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{2} (3 + e^{-2x} - 2 e^{-x})$$



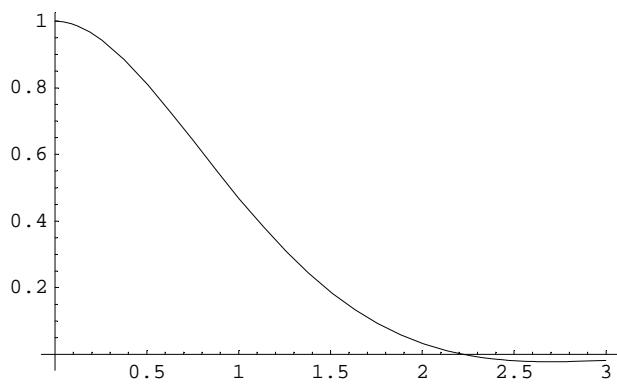
$$k1 = 2 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{2} e^{-x} (2 + 2x + x^2)$$



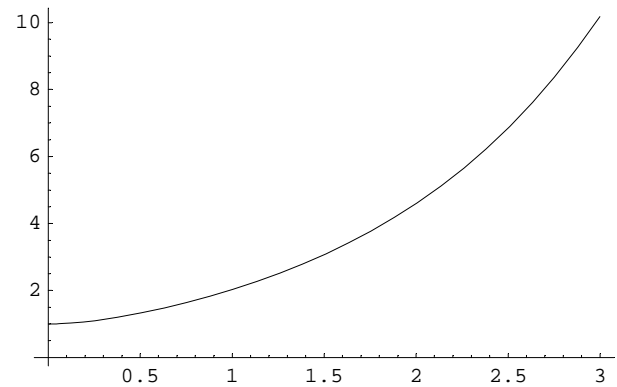
$$k1 = 2 \quad k2 = 2 \quad / \quad y[x] = e^{-x^{4124}} (1 + \text{Sin}[x^{4124}])$$



$$k1 = 2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{2} e^{-x^{4145}} (1 + \text{Cos}[\sqrt{2} x^{4145}] + \sqrt{2} \text{Sin}[\sqrt{2} x^{4145}])$$

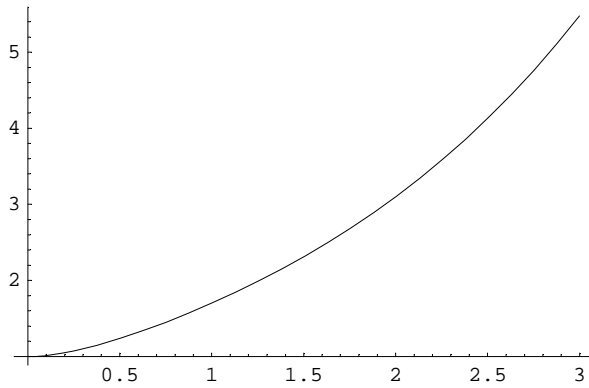


$$k1 = 3 \quad k2 = -3 \quad / \quad y[x] = \frac{1}{105} e^{-\frac{1}{2} (3+\sqrt{21}) x^{4180}} (63 - 8\sqrt{21} + (63 + 8\sqrt{21}) e^{\sqrt{21} x^{4180}} - 21 e^{\frac{1}{2} (1+\sqrt{21}) x^{4180}})$$

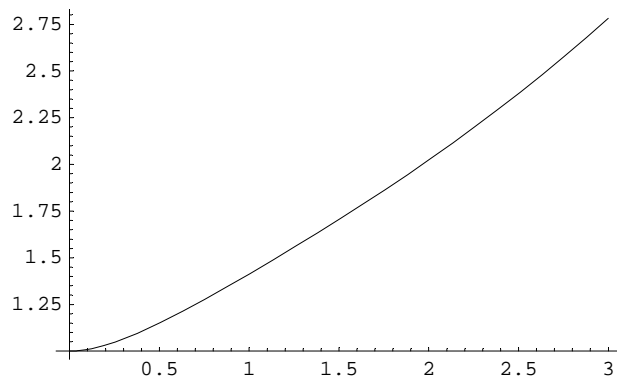


$$k1 = 3 \quad k2 = -2 \quad / \quad y[x] =$$

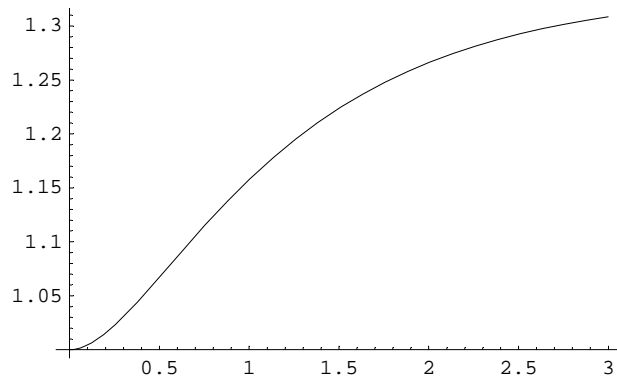
$$\frac{1}{136} e^{-\frac{1}{2}(3+\sqrt{17})x} (85 - 13\sqrt{17} + (85 + 13\sqrt{17}) e^{\sqrt{17}x} - 34 e^{\frac{1}{2}(1+\sqrt{17})x})$$



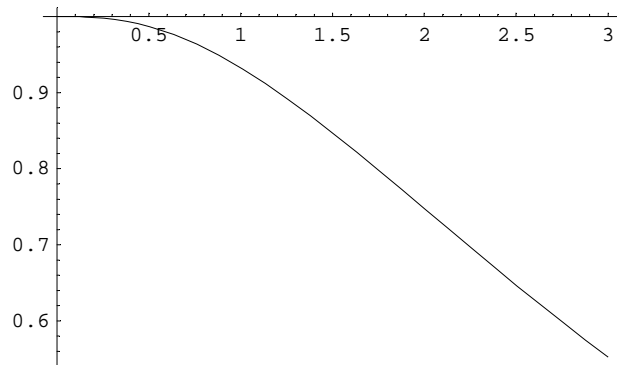
$$k1 = 3 \quad k2 = -1 \quad / \quad y[x] = \frac{1}{39} e^{-\frac{1}{2}(3+\sqrt{13})x} (26 - 5\sqrt{13} + (26 + 5\sqrt{13}) e^{\sqrt{13}x} - 13 e^{\frac{1}{2}(1+\sqrt{13})x})$$



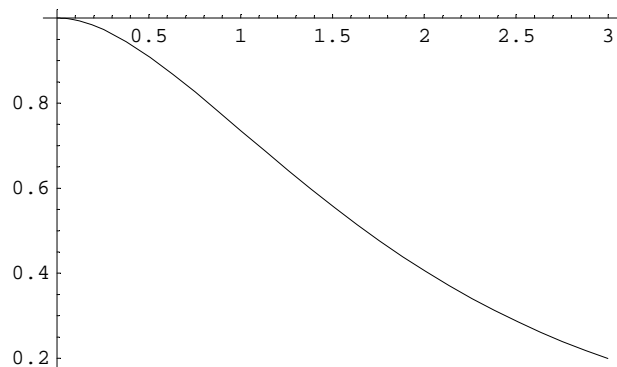
$$k1 = 3 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{6} (8 + e^{-3x} - 3 e^{-x})$$



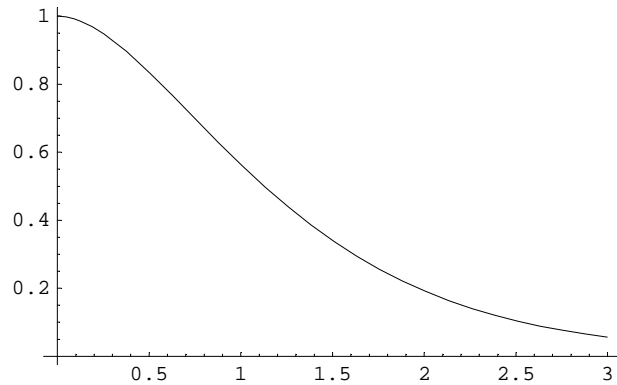
$$k1 = 3 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{5} e^{-\frac{1}{2}(3+\sqrt{5})x} (5 - 2\sqrt{5} + (5 + 2\sqrt{5}) e^{\sqrt{5}x} - 5 e^{\frac{1}{2}(1+\sqrt{5})x})$$



$$k1 = 3 \quad k2 = 2 \quad / \quad y[x] = e^{-x^4 300} (1 + x^4 300)$$



$$k1 = 3 \quad k2 = 3 \quad / \quad y[x] = e^{-x^4 314} + \frac{2 e^{-3 x^4 314/2} \sin\left[\frac{\sqrt{3} x^4 314}{2}\right]}{\sqrt{3}}$$



vi

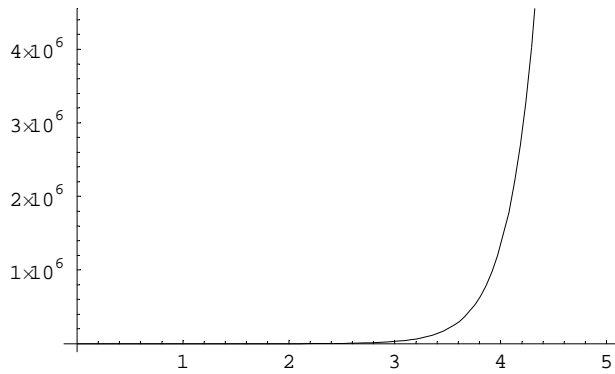
```

Remove["Global`*"];
m7[k1_,k2_,y0_,y1_]:=Module[{x,y},
solv =
DSolve[{y'[x]+ k1 y'[x]+ k2 y[x]==1+x+Cos[2 x-1]+E^(-x/5), y[0]==y0, y'[0]==
y1},y,x];
y = y/.solv[[1]];
Print["k1 = ",k1," k2 = ",k2, " / y[x] = ",y[x]//Simplify];
Plot[y[x],{x,0,5}]]];

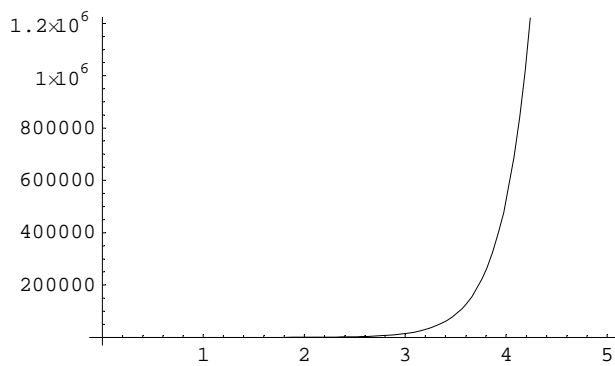
Table[m7[k1,k2,1,0],{k1,-3,3},{k2,-3,3}];

```

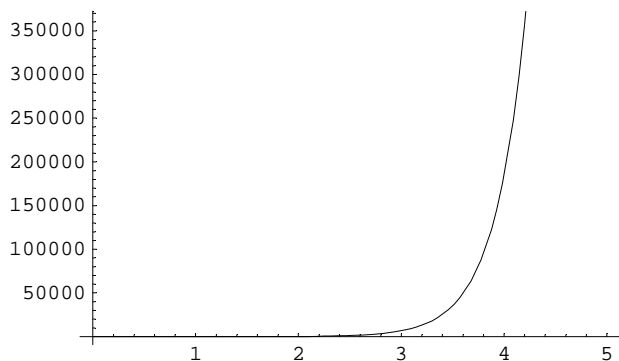
$$k1 = -3 \quad k2 = -3 / \quad y[x] = \frac{1}{631890} \left(e^{-\frac{1}{10}(17+5\sqrt{21})x^{4356}} \left(449820 e^{16x^{4356/5}} + 56780\sqrt{21} e^{16x^{4356/5}} - 267750 e^{\frac{1}{2}(3+\sqrt{21})x^{4356}} + 449820 e^{(\frac{16}{5}+\sqrt{21})x^{4356}} - 56780\sqrt{21} e^{(\frac{16}{5}+\sqrt{21})x^{4356}} - 210630 e^{\frac{1}{10}(17+5\sqrt{21})x^{4356}} x^{4356} + 26019 e^{16x^{4356/5}} \cos[1] - 531\sqrt{21} e^{16x^{4356/5}} \cos[1] + 26019 e^{(\frac{16}{5}+\sqrt{21})x^{4356}} \cos[1] + 531\sqrt{21} e^{(\frac{16}{5}+\sqrt{21})x^{4356}} \cos[1] - 52038 e^{\frac{1}{10}(17+5\sqrt{21})x^{4356}} \cos[1 - 2x^{4356}] - 22302 e^{16x^{4356/5}} \sin[1] - 8142\sqrt{21} e^{16x^{4356/5}} \sin[1] - 22302 e^{(\frac{16}{5}+\sqrt{21})x^{4356}} \sin[1] + 8142\sqrt{21} e^{(\frac{16}{5}+\sqrt{21})x^{4356}} \sin[1] + 44604 e^{\frac{1}{10}(17+5\sqrt{21})x^{4356}} \sin[1 - 2x^{4356}] \right) \right)$$



$$k1 = -3 \quad k2 = -2 / \quad y[x] = \frac{1}{408} e^{-\frac{1}{10}(17+5\sqrt{17})x^{4384}} \left(303 e^{16x^{4384/5}} + 45\sqrt{17} e^{16x^{4384/5}} - 300 e^{\frac{1}{2}(3+\sqrt{17})x^{4384}} + 303 e^{(\frac{16}{5}+\sqrt{17})x^{4384}} - 45\sqrt{17} e^{(\frac{16}{5}+\sqrt{17})x^{4384}} + 102 e^{\frac{1}{10}(17+5\sqrt{17})x^{4384}} - 204 e^{\frac{1}{10}(17+5\sqrt{17})x^{4384}} x^{4384} + 17 e^{16x^{4384/5}} \cos[1] - \sqrt{17} e^{16x^{4384/5}} \cos[1] + 17 e^{(\frac{16}{5}+\sqrt{17})x^{4384}} \cos[1] + \sqrt{17} e^{(\frac{16}{5}+\sqrt{17})x^{4384}} \cos[1] - 34 e^{\frac{1}{10}(17+5\sqrt{17})x^{4384}} \cos[1 - 2x^{4384}] - 17 e^{16x^{4384/5}} \sin[1] - 7\sqrt{17} e^{16x^{4384/5}} \sin[1] - 17 e^{(\frac{16}{5}+\sqrt{17})x^{4384}} \sin[1] + 7\sqrt{17} e^{(\frac{16}{5}+\sqrt{17})x^{4384}} \sin[1] + 34 e^{\frac{1}{10}(17+5\sqrt{17})x^{4384}} \sin[1 - 2x^{4384}] \right)$$

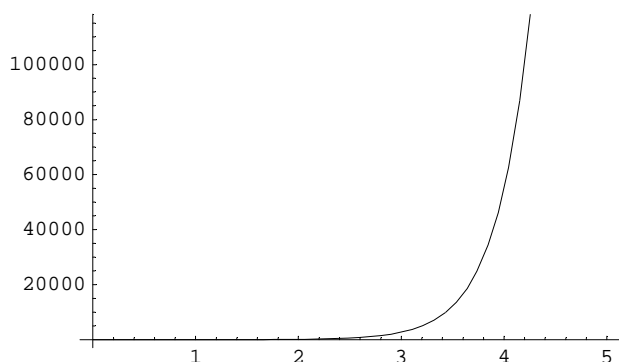


$$k1 = -3 \quad k2 = -1 / \quad y[x] = \frac{1}{14274} \left(e^{-\frac{1}{10}(17+5\sqrt{13})x^{4412}} \left(12688 e^{16x^{4412/5}} + 2440\sqrt{13} e^{16x^{4412/5}} - 39650 e^{\frac{1}{2}(3+\sqrt{13})x^{4412}} + 12688 e^{(\frac{16}{5}+\sqrt{13})x^{4412}} - 2440\sqrt{13} e^{(\frac{16}{5}+\sqrt{13})x^{4412}} + 28548 e^{\frac{1}{10}(17+5\sqrt{13})x^{4412}} - 14274 e^{\frac{1}{10}(17+5\sqrt{13})x^{4412}} x^{4412} + 585 e^{16x^{4412/5}} \cos[1] - 81\sqrt{13} e^{16x^{4412/5}} \cos[1] + 585 e^{(\frac{16}{5}+\sqrt{13})x^{4412}} \cos[1] + 81\sqrt{13} e^{(\frac{16}{5}+\sqrt{13})x^{4412}} \cos[1] - 1170 e^{\frac{1}{10}(17+5\sqrt{13})x^{4412}} \cos[1 - 2x^{4412}] - 702 e^{16x^{4412/5}} \sin[1] - 342\sqrt{13} e^{16x^{4412/5}} \sin[1] - 702 e^{(\frac{16}{5}+\sqrt{13})x^{4412}} \sin[1] + 342\sqrt{13} e^{(\frac{16}{5}+\sqrt{13})x^{4412}} \sin[1] + 1404 e^{\frac{1}{10}(17+5\sqrt{13})x^{4412}} \sin[1 - 2x^{4412}] \right) \right)$$



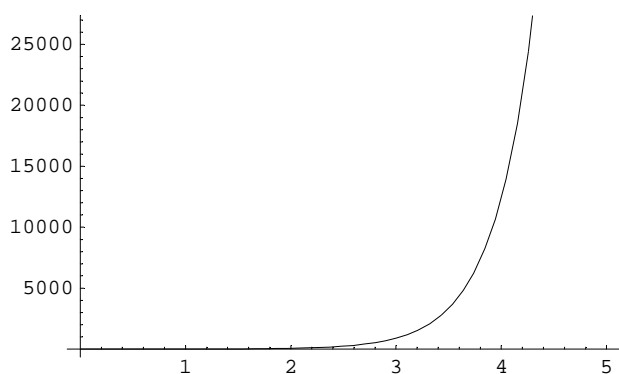
k1 = -3 k2 = 0 / y[x] =

$$\frac{1}{5616} (-4576 + 8775 e^{-x^{4440/5}} + 1417 e^{3 x^{4440}} - 2496 x^{4440} - 936 x^{4440^2} + 432 e^{3 x^{4440}} \text{Cos}[1] - 432 \text{Cos}[1 - 2 x^{4440}] - 936 \text{Sin}[1] + 288 e^{3 x^{4440}} \text{Sin}[1] + 648 \text{Sin}[1 - 2 x^{4440}])$$



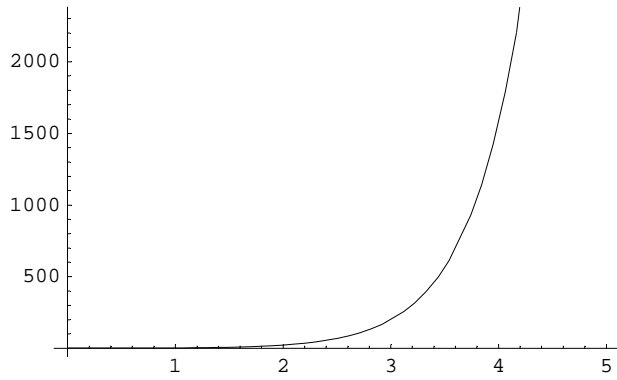
k1 = -3 k2 = 1 / y[x] =

$$\frac{1}{1230} (e^{-\frac{1}{10} (17+5\sqrt{5}) x^{4454}} (-2220 e^{16 x^{4454/5}} - 1116 \sqrt{5} e^{16 x^{4454/5}} + 750 e^{\frac{1}{2} (3+\sqrt{5}) x^{4454}} - 2220 e^{(\frac{16}{5}+\sqrt{5}) x^{4454}} + 1116 \sqrt{5} e^{(\frac{16}{5}+\sqrt{5}) x^{4454}} + 4920 e^{\frac{1}{10} (17+5\sqrt{5}) x^{4454}} + 1230 e^{\frac{1}{10} (17+5\sqrt{5}) x^{4454}} x^{4454} + 41 e^{16 x^{4454/5}} \text{Cos}[1] - 41 \sqrt{5} e^{16 x^{4454/5}} \text{Cos}[1] + 41 e^{(\frac{16}{5}+\sqrt{5}) x^{4454}} \text{Cos}[1] + 41 \sqrt{5} e^{(\frac{16}{5}+\sqrt{5}) x^{4454}} \text{Cos}[1] - 82 e^{\frac{1}{10} (17+5\sqrt{5}) x^{4454}} \text{Cos}[1 - 2 x^{4454}] - 82 e^{16 x^{4454/5}} \text{Sin}[1] - 82 \sqrt{5} e^{16 x^{4454/5}} \text{Sin}[1] - 82 e^{(\frac{16}{5}+\sqrt{5}) x^{4454}} \text{Sin}[1] + 82 \sqrt{5} e^{(\frac{16}{5}+\sqrt{5}) x^{4454}} \text{Sin}[1] + 164 e^{\frac{1}{10} (17+5\sqrt{5}) x^{4454}} \text{Sin}[1 - 2 x^{4454}]))$$



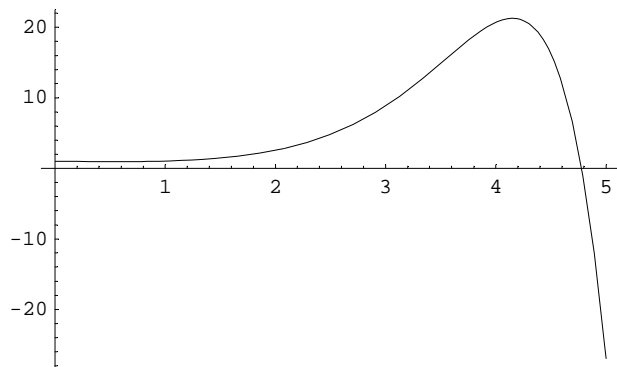
k1 = -3 k2 = 2 / y[x] =

$$\frac{1}{660} (825 + 250 e^{-x^{4482/5}} - 550 e^{x^{4482}} + 135 e^{2 x^{4482}} + 330 x^{4482} - 132 e^{x^{4482}} \text{Cos}[1] + 165 e^{2 x^{4482}} \text{Cos}[1] - 33 \text{Cos}[1 - 2 x^{4482}] - 264 e^{x^{4482}} \text{Sin}[1] + 165 e^{2 x^{4482}} \text{Sin}[1] + 99 \text{Sin}[1 - 2 x^{4482}])$$



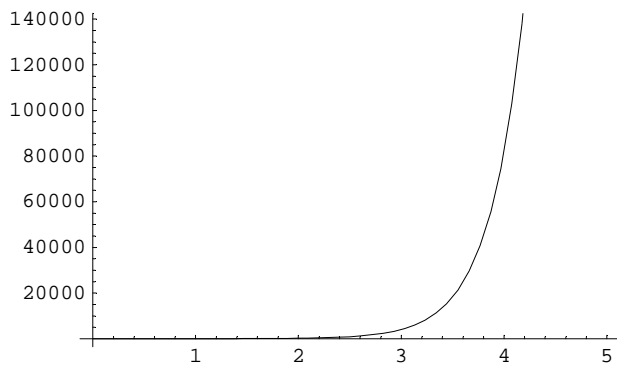
$$k_1 = -3 \quad k_2 = 3 \quad / \quad y[x] = \frac{1}{30303}$$

$$\left(20202 + 8325 e^{-x^4500/5} + 10101 x^4500 + 3 e^{3 x^4500/2} \cos\left[\frac{\sqrt{3} x^4500}{2}\right] (592 + 273 \cos[1] - 1638 \sin[1]) - \right. \\ \left. 819 \cos[x^4500]^2 (\cos[1] - 6 \sin[1]) - 9828 \cos[1] \cos[x^4500] \sin[x^4500] + \right. \\ \left. 819 \cos[1] \sin[x^4500]^2 - 4914 \sin[1] \sin[x^4500]^2 - \right. \\ \left. 819 \sin[1] \sin[2 x^4500] - 7400 \sqrt{3} e^{3 x^4500/2} \sin\left[\frac{\sqrt{3} x^4500}{2}\right] + \right. \\ \left. 5733 \sqrt{3} e^{3 x^4500/2} \cos[1] \sin\left[\frac{\sqrt{3} x^4500}{2}\right] + 6006 \sqrt{3} e^{3 x^4500/2} \sin[1] \sin\left[\frac{\sqrt{3} x^4500}{2}\right] \right)$$

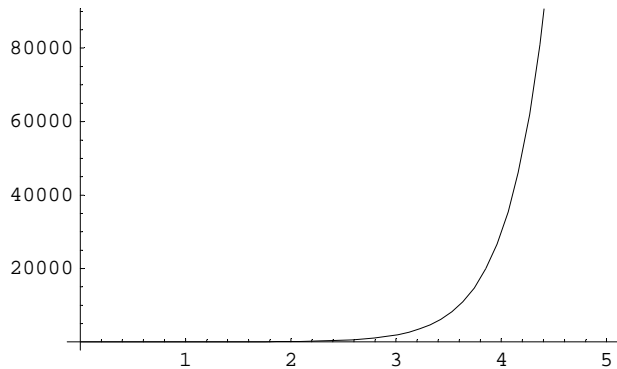


$$k_1 = -2 \quad k_2 = -3 \quad / \quad y[x] =$$

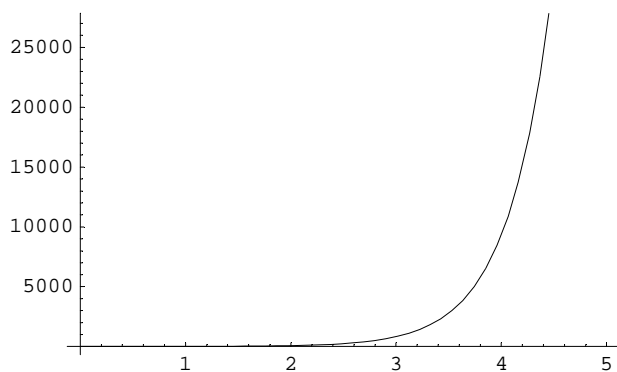
$$-\frac{1}{9} + \frac{17 e^{-x^4528}}{16} - \frac{25 e^{-x^4528/5}}{64} + \frac{253 e^{3 x^4528}}{576} - \frac{x^4528}{3} + \frac{1}{20} e^{-x^4528} \cos[1] + \frac{3}{52} e^{3 x^4528} \cos[1] - \\ \frac{7}{65} \cos[1 - 2 x^4528] - \frac{1}{10} e^{-x^4528} \sin[1] + \frac{1}{26} e^{3 x^4528} \sin[1] + \frac{4}{65} \sin[1 - 2 x^4528]$$



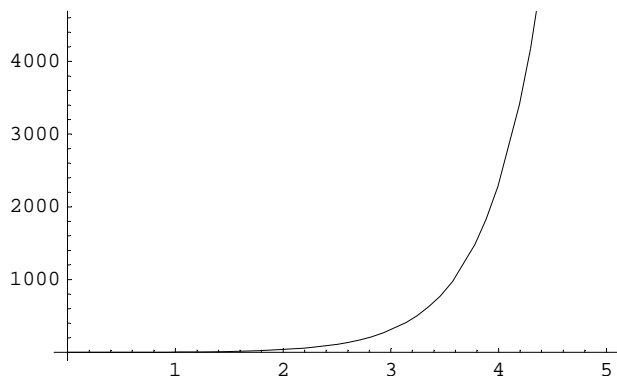
$$\begin{aligned}
 &k1 = -2 \quad k2 = -2 / \quad y[x] = \\
 &\frac{1}{156} \left(-100 e^{-x\$4552/5} + 128 e^{(1+\sqrt{3}) x\$4552} - 33 \sqrt{3} e^{(1+\sqrt{3}) x\$4552} + 128 e^{x\$4552-\sqrt{3} x\$4552} + 33 \sqrt{3} e^{x\$4552-\sqrt{3} x\$4552} - \right. \\
 &78 x\$4552 + 9 e^{(1+\sqrt{3}) x\$4552} \cos[1] + \sqrt{3} e^{(1+\sqrt{3}) x\$4552} \cos[1] + 9 e^{x\$4552-\sqrt{3} x\$4552} \cos[1] - \\
 &\sqrt{3} e^{x\$4552-\sqrt{3} x\$4552} \cos[1] - 6 \cos[x\$4552]^2 (3 \cos[1] - 2 \sin[1]) - 6 e^{(1+\sqrt{3}) x\$4552} \sin[1] + \\
 &8 \sqrt{3} e^{(1+\sqrt{3}) x\$4552} \sin[1] - 6 e^{x\$4552-\sqrt{3} x\$4552} \sin[1] - 8 \sqrt{3} e^{x\$4552-\sqrt{3} x\$4552} \sin[1] + \\
 &6 (3 \cos[1] - 2 \sin[1]) \sin[x\$4552]^2 - 6 (2 \cos[1] + 3 \sin[1]) \sin[2 x\$4552] \left. \right)
 \end{aligned}$$



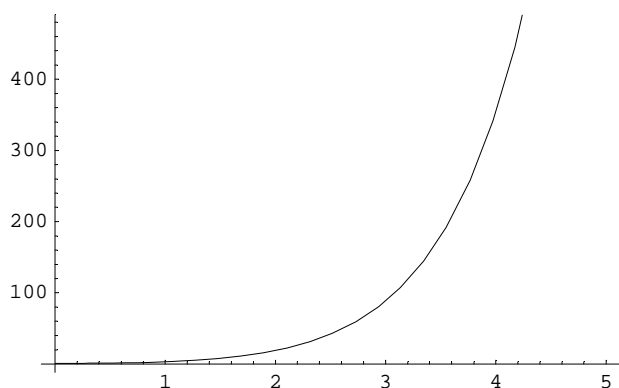
$$\begin{aligned}
 &k1 = -2 \quad k2 = -1 / \quad y[x] = \\
 &\frac{1}{1148} \left(1148 - 2050 e^{-x\$4580/5} + 1025 e^{(1+\sqrt{2}) x\$4580} - 328 \sqrt{2} e^{(1+\sqrt{2}) x\$4580} + 1025 e^{x\$4580-\sqrt{2} x\$4580} + \right. \\
 &328 \sqrt{2} e^{x\$4580-\sqrt{2} x\$4580} - 1148 x\$4580 + 70 e^{(1+\sqrt{2}) x\$4580} \cos[1] + \\
 &21 \sqrt{2} e^{(1+\sqrt{2}) x\$4580} \cos[1] + 70 e^{x\$4580-\sqrt{2} x\$4580} \cos[1] - 21 \sqrt{2} e^{x\$4580-\sqrt{2} x\$4580} \cos[1] - \\
 &28 \cos[x\$4580]^2 (5 \cos[1] - 4 \sin[1]) - 56 e^{(1+\sqrt{2}) x\$4580} \sin[1] + \\
 &98 \sqrt{2} e^{(1+\sqrt{2}) x\$4580} \sin[1] - 56 e^{x\$4580-\sqrt{2} x\$4580} \sin[1] - 98 \sqrt{2} e^{x\$4580-\sqrt{2} x\$4580} \sin[1] + \\
 &28 (5 \cos[1] - 4 \sin[1]) \sin[x\$4580]^2 - 28 (4 \cos[1] + 5 \sin[1]) \sin[2 x\$4580] \left. \right)
 \end{aligned}$$



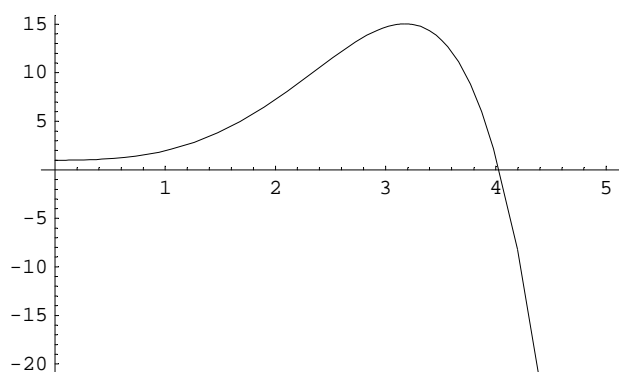
$$\begin{aligned}
 &k1 = -2 \quad k2 = 0 / \quad y[x] = \\
 &\frac{1}{88} \left(-165 + 200 e^{-x\$4617/5} + 53 e^{2 x\$4617} - 66 x\$4617 - 22 x\$4617^2 + 11 e^{2 x\$4617} \cos[1] - \right. \\
 &11 \cos[1 - 2 x\$4617] - 22 \sin[1] + 11 e^{2 x\$4617} \sin[1] + 11 \sin[1 - 2 x\$4617] \left. \right)
 \end{aligned}$$



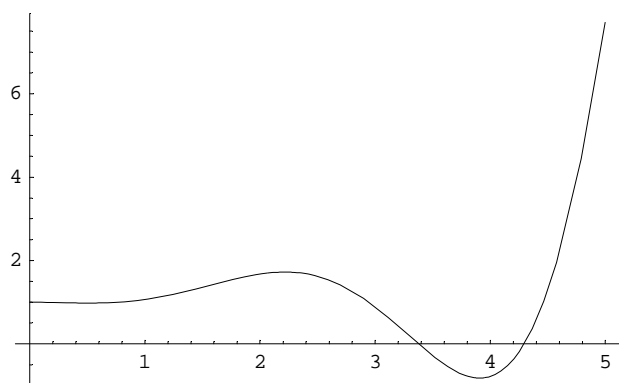
$$k1 = -2 \quad k2 = 1 \quad / \quad y[x] = 3 + \frac{25 e^{-x\$4631/5}}{36} - \frac{97 e^{x\$4631}}{36} + x\$4631 + \frac{11 e^{x\$4631} x\$4631}{6} + \frac{3}{25} e^{x\$4631} \text{Cos}[1] + \frac{1}{5} e^{x\$4631} x\$4631 \text{Cos}[1] - \frac{3}{25} \text{Cos}[1 - 2 x\$4631] - \frac{4}{25} e^{x\$4631} \text{Sin}[1] + \frac{2}{5} e^{x\$4631} x\$4631 \text{Sin}[1] + \frac{4}{25} \text{Sin}[1 - 2 x\$4631]$$



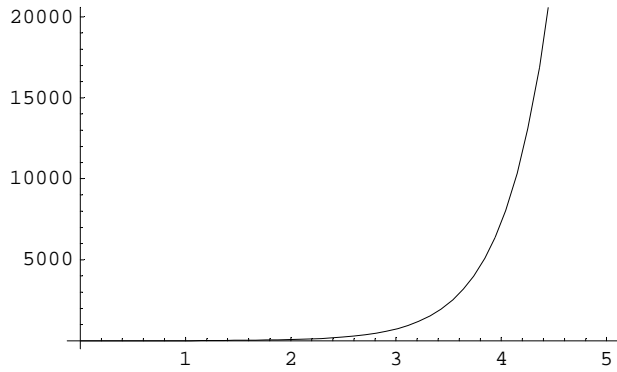
$$k1 = -2 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{1220} (1220 + 500 e^{-x\$4649/5} + 610 x\$4649 - 122 \text{Cos}[1 - 2 x\$4649] + 305 e^{x\$4649} \text{Cos}[1 - x\$4649] - 500 e^{x\$4649} \text{Cos}[x\$4649] - 183 e^{x\$4649} \text{Cos}[1 + x\$4649] + 244 \text{Sin}[1 - 2 x\$4649] - 305 e^{x\$4649} \text{Sin}[1 - x\$4649] - 10 e^{x\$4649} \text{Sin}[x\$4649] + 61 e^{x\$4649} \text{Sin}[1 + x\$4649])$$



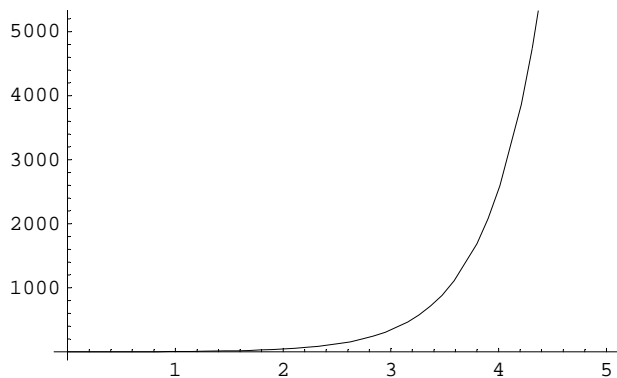
$$k1 = -2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{13158} (7310 + 3825 e^{-x\$4670/5} + 4386 x\$4670 + e^{x\$4670} \text{Cos}[\sqrt{2} x\$4670] (2023 + 774 \text{Cos}[1] - 3096 \text{Sin}[1]) - 774 \text{Cos}[x\$4670]^2 (\text{Cos}[1] - 4 \text{Sin}[1]) - 6192 \text{Cos}[1] \text{Cos}[x\$4670] \text{Sin}[x\$4670] + 774 \text{Cos}[1] \text{Sin}[x\$4670]^2 - 3096 \text{Sin}[1] \text{Sin}[x\$4670]^2 - 774 \text{Sin}[1] \text{Sin}[2 x\$4670] - 2822 \sqrt{2} e^{x\$4670} \text{Sin}[\sqrt{2} x\$4670] + 2709 \sqrt{2} e^{x\$4670} \text{Cos}[1] \text{Sin}[\sqrt{2} x\$4670] + 2322 \sqrt{2} e^{x\$4670} \text{Sin}[1] \text{Sin}[\sqrt{2} x\$4670])$$



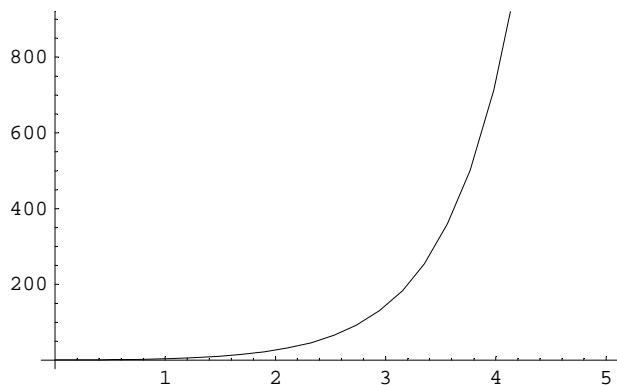
$$\begin{aligned}
 k1 = -1 \quad k2 = -3 \quad / \quad Y[x] = & \\
 -\frac{1}{285246} \left(e^{-\frac{1}{10}(7+5\sqrt{13})x^{4698}} \left(-225992 e^{6x^{4698/5}} - 11660\sqrt{13} e^{6x^{4698/5}} + 103350 e^{\frac{1}{2}(1+\sqrt{13})x^{4698}} - \right. \right. \\
 & 225992 e^{\left(\frac{6}{5}+\sqrt{13}\right)x^{4698}} + 11660\sqrt{13} e^{\left(\frac{6}{5}+\sqrt{13}\right)x^{4698}} + 63388 e^{\frac{1}{10}(7+5\sqrt{13})x^{4698}} + \\
 & 95082 e^{\frac{1}{10}(7+5\sqrt{13})x^{4698}} x^{4698} - 18837 e^{6x^{4698/5}} \cos[1] + 207\sqrt{13} e^{6x^{4698/5}} \cos[1] - 18837 \\
 & e^{\left(\frac{6}{5}+\sqrt{13}\right)x^{4698}} \cos[1] - 207\sqrt{13} e^{\left(\frac{6}{5}+\sqrt{13}\right)x^{4698}} \cos[1] + 37674 e^{\frac{1}{10}(7+5\sqrt{13})x^{4698}} \cos[1 - 2x^{4698}] + \\
 & 5382 e^{6x^{4698/5}} \sin[1] + 6210\sqrt{13} e^{6x^{4698/5}} \sin[1] + 5382 e^{\left(\frac{6}{5}+\sqrt{13}\right)x^{4698}} \sin[1] - \\
 & \left. \left. 6210\sqrt{13} e^{\left(\frac{6}{5}+\sqrt{13}\right)x^{4698}} \sin[1] - 10764 e^{\frac{1}{10}(7+5\sqrt{13})x^{4698}} \sin[1 - 2x^{4698}] \right) \right)
 \end{aligned}$$



$$\begin{aligned}
 k1 = -1 \quad k2 = -2 \quad / \quad Y[x] = & \frac{1}{660} e^{-x^{4723}} \\
 (715 - 375 e^{4x^{4723/5}} - 165 e^{x^{4723}} + 485 e^{3x^{4723}} - 330 e^{x^{4723}} x^{4723} + 44 \cos[1] + 55 e^{3x^{4723}} \cos[1] - \\
 & 99 e^{x^{4723}} \cos[1 - 2x^{4723}] - 88 \sin[1] + 55 e^{3x^{4723}} \sin[1] + 33 e^{x^{4723}} \sin[1 - 2x^{4723}])
 \end{aligned}$$

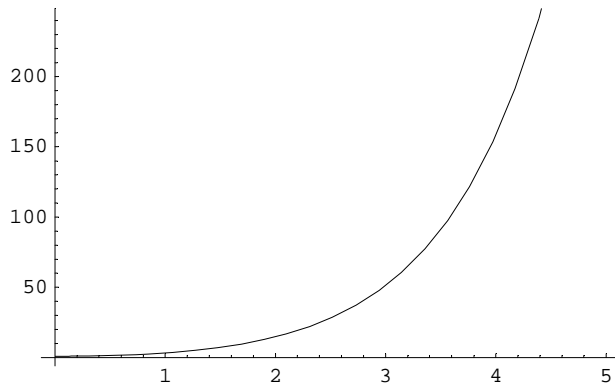


$$\begin{aligned}
 k1 = -1 \quad k2 = -1 \quad / \quad Y[x] = & \\
 \frac{1}{5510} \left(e^{-\frac{1}{10}(7+5\sqrt{5})x^{4744}} \left(6380 e^{6x^{4744/5}} + 464\sqrt{5} e^{6x^{4744/5}} - 7250 e^{\frac{1}{2}(1+\sqrt{5})x^{4744}} + \right. \right. \\
 & 6380 e^{\left(\frac{6}{5}+\sqrt{5}\right)x^{4744}} - 464\sqrt{5} e^{\left(\frac{6}{5}+\sqrt{5}\right)x^{4744}} - 5510 e^{\frac{1}{10}(7+5\sqrt{5})x^{4744}} x^{4744} + 475 e^{6x^{4744/5}} \cos[1] - \\
 & 57\sqrt{5} e^{6x^{4744/5}} \cos[1] + 475 e^{\left(\frac{6}{5}+\sqrt{5}\right)x^{4744}} \cos[1] + 57\sqrt{5} e^{\left(\frac{6}{5}+\sqrt{5}\right)x^{4744}} \cos[1] - \\
 & 950 e^{\frac{1}{10}(7+5\sqrt{5})x^{4744}} \cos[1 - 2x^{4744}] - 190 e^{6x^{4744/5}} \sin[1] - 418\sqrt{5} e^{6x^{4744/5}} \sin[1] - \\
 & \left. \left. 190 e^{\left(\frac{6}{5}+\sqrt{5}\right)x^{4744}} \sin[1] + 418\sqrt{5} e^{\left(\frac{6}{5}+\sqrt{5}\right)x^{4744}} \sin[1] + 380 e^{\frac{1}{10}(7+5\sqrt{5})x^{4744}} \sin[1 - 2x^{4744}] \right) \right)
 \end{aligned}$$



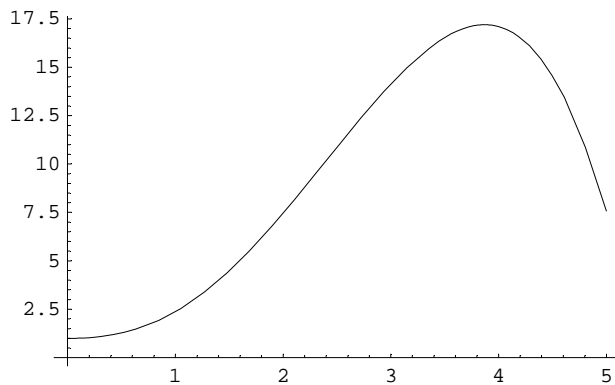
k1 = -1 k2 = 0 / y[x] =

$$\frac{1}{30} (-180 + 125 e^{-x^{4769/5}} + 85 e^{x^{4769}} - 60 x^{4769} - 15 x^{4769^2} + 6 e^{x^{4769}} \cos[1] - 6 \cos[1 - 2 x^{4769}] - 15 \sin[1] + 12 e^{x^{4769}} \sin[1] + 3 \sin[1 - 2 x^{4769}])$$



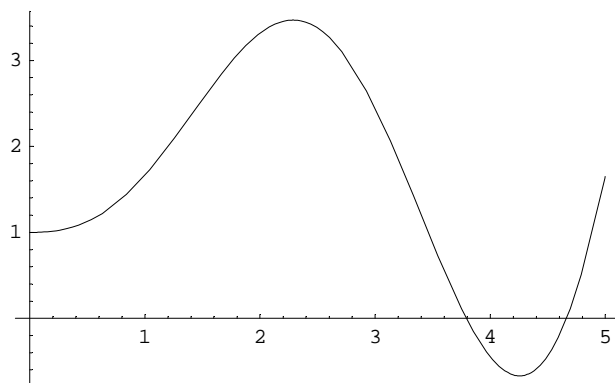
k1 = -1 k2 = 1 / y[x] =

$$\frac{1}{1209} \left(2418 + 975 e^{-x^{4785/5}} + 1209 x^{4785} + 3 e^{x^{4785/2}} \cos\left[\frac{\sqrt{3} x^{4785}}{2}\right] (-728 + 93 \cos[1] - 62 \sin[1]) - 93 \cos[x^{4785}]^2 (3 \cos[1] - 2 \sin[1]) + 279 \cos[1] \sin[x^{4785}]^2 - 186 \sin[1] \sin[x^{4785}]^2 - 186 \cos[1] \sin[2 x^{4785}] - 279 \sin[1] \sin[2 x^{4785}] + 52 \sqrt{3} e^{x^{4785/2}} \sin\left[\frac{\sqrt{3} x^{4785}}{2}\right] + 155 \sqrt{3} e^{x^{4785/2}} \cos[1] \sin\left[\frac{\sqrt{3} x^{4785}}{2}\right] + 434 \sqrt{3} e^{x^{4785/2}} \sin[1] \sin\left[\frac{\sqrt{3} x^{4785}}{2}\right] \right)$$

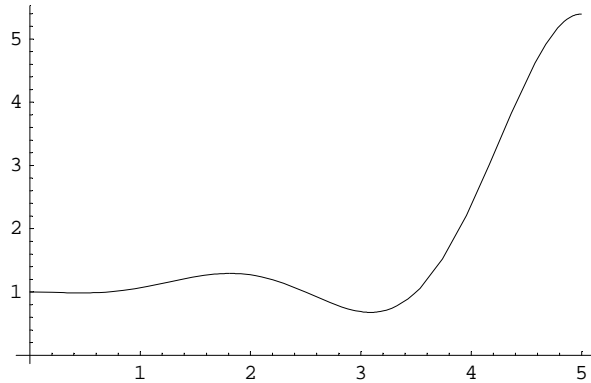


k1 = -1 k2 = 2 / y[x] =

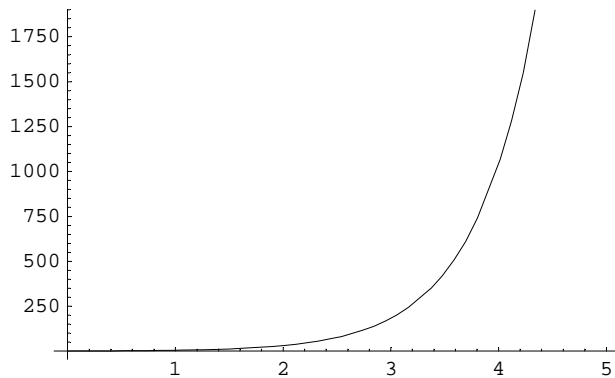
$$\frac{1}{56} \left(42 + 25 e^{-x^{4810/5}} + 28 x^{4810} + e^{x^{4810/2}} \cos\left[\frac{\sqrt{7} x^{4810}}{2}\right] (-11 + 14 \cos[1] - 14 \sin[1]) - 14 \cos[x^{4810}]^2 (\cos[1] - \sin[1]) + 14 \cos[1] \sin[x^{4810}]^2 - 14 \sin[1] \sin[x^{4810}]^2 - 14 \cos[1] \sin[2 x^{4810}] - 14 \sin[1] \sin[2 x^{4810}] - 5 \sqrt{7} e^{x^{4810/2}} \sin\left[\frac{\sqrt{7} x^{4810}}{2}\right] + 6 \sqrt{7} e^{x^{4810/2}} \cos[1] \sin\left[\frac{\sqrt{7} x^{4810}}{2}\right] + 10 \sqrt{7} e^{x^{4810/2}} \sin[1] \sin\left[\frac{\sqrt{7} x^{4810}}{2}\right] \right)$$



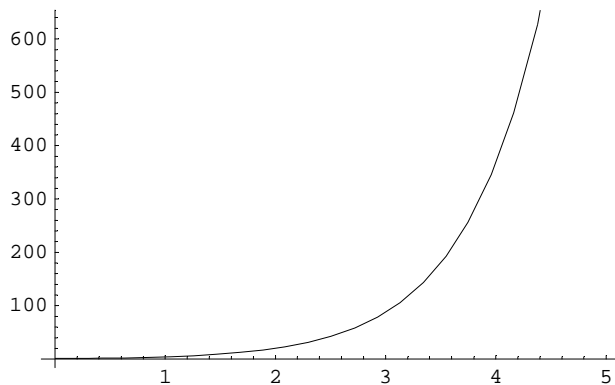
$$\begin{aligned}
 k1 = -1 \quad k2 = 3 \quad / \quad y[x] = & \\
 \frac{4}{9} + \frac{25 e^{-x^{4835/5}}}{81} + \frac{x^{4835}}{3} + \frac{1}{405} e^{x^{4835/2}} \operatorname{Cos}\left[\frac{\sqrt{11} x^{4835}}{2}\right] (100 + 81 \operatorname{Cos}[1] - 162 \operatorname{Sin}[1]) - & \\
 \frac{1}{5} \operatorname{Cos}[x^{4835}]^2 (\operatorname{Cos}[1] - 2 \operatorname{Sin}[1]) - \frac{4}{5} \operatorname{Cos}[1] \operatorname{Cos}[x^{4835}] \operatorname{Sin}[x^{4835}] + & \\
 \frac{1}{5} \operatorname{Cos}[1] \operatorname{Sin}[x^{4835}]^2 - \frac{2}{5} \operatorname{Sin}[1] \operatorname{Sin}[x^{4835}]^2 - \frac{1}{5} \operatorname{Sin}[1] \operatorname{Sin}[2 x^{4835}] - & \\
 \frac{64 e^{x^{4835/2}} \operatorname{Sin}\left[\frac{\sqrt{11} x^{4835}}{2}\right]}{81 \sqrt{11}} + \frac{7 e^{x^{4835/2}} \operatorname{Cos}[1] \operatorname{Sin}\left[\frac{\sqrt{11} x^{4835}}{2}\right]}{5 \sqrt{11}} + \frac{6 e^{x^{4835/2}} \operatorname{Sin}[1] \operatorname{Sin}\left[\frac{\sqrt{11} x^{4835}}{2}\right]}{5 \sqrt{11}} &
 \end{aligned}$$



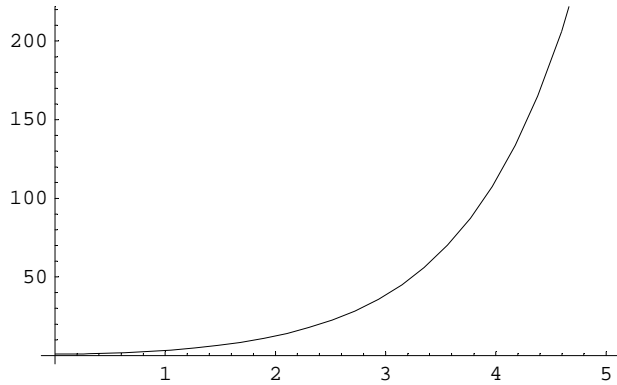
$$\begin{aligned}
 k1 = 0 \quad k2 = -3 \quad / \quad y[x] = & \\
 \frac{1}{9324} \left(e^{-(\frac{1}{5} + 2\sqrt{3}) x^{4869}} \left(-1332 e^{(\frac{1}{5} + 2\sqrt{3}) x^{4869}} \operatorname{Cos}[1 - 2 x^{4869}] + e^{\sqrt{3} x^{4869}} \left(-3150 e^{\sqrt{3} x^{4869}} - \right. \right. \right. & \\
 3108 e^{(\frac{1}{5} + \sqrt{3}) x^{4869}} (1 + x^{4869}) + e^{x^{4869/5}} (7791 - 413 \sqrt{3} + 666 \operatorname{Cos}[1] - 444 \sqrt{3} \operatorname{Sin}[1]) + & \\
 \left. \left. \left. e^{(\frac{1}{5} + 2\sqrt{3}) x^{4869}} (7791 + 413 \sqrt{3} + 666 \operatorname{Cos}[1] + 444 \sqrt{3} \operatorname{Sin}[1]) \right) \right) \right) &
 \end{aligned}$$



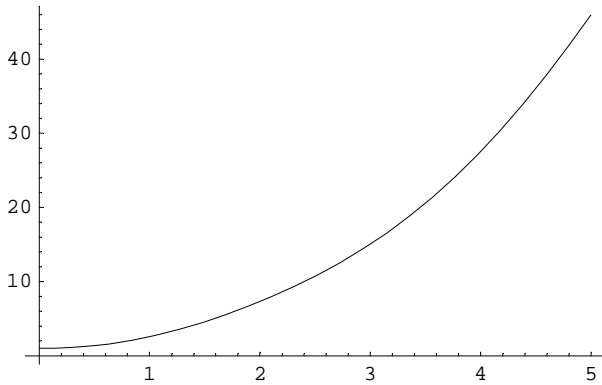
$$\begin{aligned}
 k1 = 0 \quad k2 = -2 \quad / \quad y[x] = & \\
 \frac{1}{1176} \left(e^{-(\frac{1}{5} + 2\sqrt{2}) x^{4878}} \left(-196 e^{(\frac{1}{5} + 2\sqrt{2}) x^{4878}} \operatorname{Cos}[1 - 2 x^{4878}] + e^{\sqrt{2} x^{4878}} \left(-600 e^{\sqrt{2} x^{4878}} - \right. \right. \right. & \\
 588 e^{(\frac{1}{5} + \sqrt{2}) x^{4878}} (1 + x^{4878}) + e^{x^{4878/5}} (1182 - 117 \sqrt{2} + 98 \operatorname{Cos}[1] - 98 \sqrt{2} \operatorname{Sin}[1]) + & \\
 \left. \left. \left. e^{(\frac{1}{5} + 2\sqrt{2}) x^{4878}} (1182 + 117 \sqrt{2} + 98 \operatorname{Cos}[1] + 98 \sqrt{2} \operatorname{Sin}[1]) \right) \right) \right) &
 \end{aligned}$$



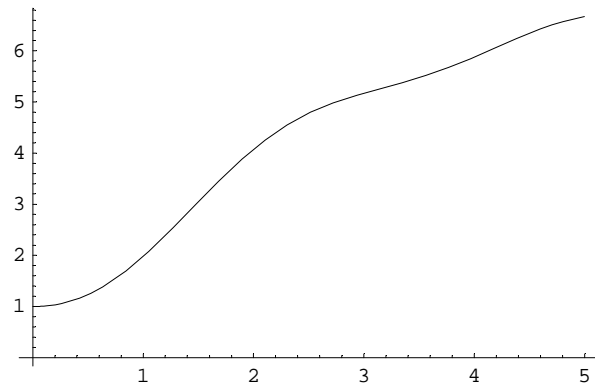
$$k1 = 0 \quad k2 = -1 / \quad y[x] = \frac{1}{120} e^{-x^{4887}} (-125 e^{4 x^{4887/5}} - 120 e^{x^{4887}} (1 + x^{4887}) - 24 e^{x^{4887}} \cos[1 - 2 x^{4887}] + 3 (45 + 4 \cos[1] - 8 \sin[1]) + 2 e^{2 x^{4887}} (115 + 6 \cos[1] + 12 \sin[1]))$$



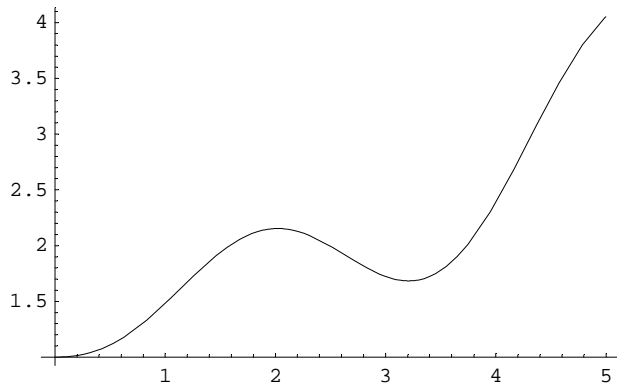
$$k1 = 0 \quad k2 = 0 / \quad y[x] = \frac{1}{12} (-288 + 300 e^{-x^{4898/5}} + 60 x^{4898} + 6 x^{4898^2} + 2 x^{4898^3} + 3 \cos[1] - 3 \cos[1 - 2 x^{4898}] + 6 x^{4898} \sin[1])$$



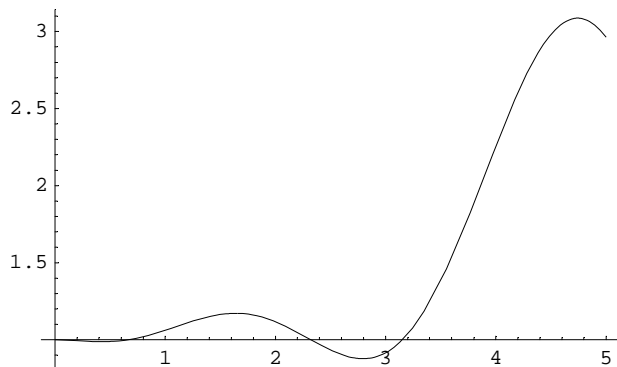
$$k1 = 0 \quad k2 = 1 / \quad y[x] = \frac{1}{78} (78 + 75 e^{-x^{4913/5}} + 78 x^{4913} - 26 \cos[1 - 2 x^{4913}] + (-75 + 26 \cos[1]) \cos[x^{4913}] - 63 \sin[x^{4913}] + 52 \sin[1] \sin[x^{4913}])$$



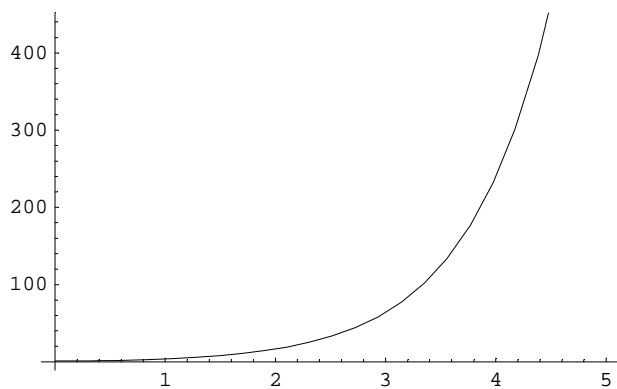
$$k1 = 0 \quad k2 = 2 / \quad y[x] = \frac{1}{204} (102 + 100 e^{-x^{4921/5}} + 102 x^{4921} - 102 \cos[1] \cos[x^{4921}]^2 + 2 (1 + 51 \cos[1]) \cos[\sqrt{2} x^{4921}] - 204 \cos[x^{4921}] \sin[1] \sin[x^{4921}] + 102 \cos[1] \sin[x^{4921}]^2 - 41 \sqrt{2} \sin[\sqrt{2} x^{4921}] + 102 \sqrt{2} \sin[1] \sin[\sqrt{2} x^{4921}])$$



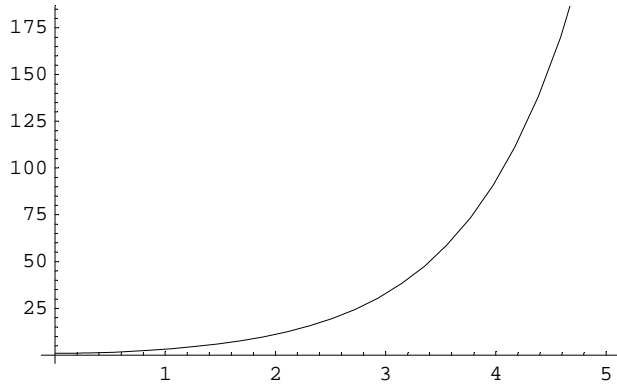
$$k1 = 0 \quad k2 = 3 / \quad y[x] = \frac{1}{3} + \frac{25 e^{-x\$4929/5}}{76} + \frac{x\$4929}{3} - \text{Cos}[1] \text{Cos}[x\$4929]^2 + \left(\frac{77}{228} + \text{Cos}[1]\right) \text{Cos}[\sqrt{3} x\$4929] + \text{Cos}[1] \text{Sin}[x\$4929]^2 - \text{Sin}[1] \text{Sin}[2 x\$4929] - \frac{61 \text{Sin}[\sqrt{3} x\$4929]}{228 \sqrt{3}} + \frac{2 \text{Sin}[1] \text{Sin}[\sqrt{3} x\$4929]}{\sqrt{3}}$$



$$k1 = 1 \quad k2 = -3 / \quad y[x] = \frac{1}{979758} \left(e^{-\frac{1}{10} (-3+5\sqrt{13}) x\$4937} \left(-129402 e^{\frac{1}{10} (-3+5\sqrt{13}) x\$4937} \text{Cos}[1 - 2 x\$4937] + e^{-4 x\$4937/5} \right. \right. \\ \left. \left. (862628 - 86708 \sqrt{13} - 310050 e^{\frac{1}{10} (3+5\sqrt{13}) x\$4937} - 108862 e^{\frac{1}{2} (1+\sqrt{13}) x\$4937} (4 + 3 x\$4937) + \right. \right. \\ \left. \left. 64701 \text{Cos}[1] + 711 \sqrt{13} \text{Cos}[1] + 18486 \text{Sin}[1] - 21330 \sqrt{13} \text{Sin}[1] + \right. \right. \\ \left. \left. e^{\sqrt{13} x\$4937} (212 (4069 + 409 \sqrt{13}) - 711 (-91 + \sqrt{13}) \text{Cos}[1] + 1422 (13 + 15 \sqrt{13}) \text{Sin}[1]) - \right. \right. \\ \left. \left. 36972 e^{\frac{1}{2} (1+\sqrt{13}) x\$4937} \text{Sin}[1 - 2 x\$4937] \right) \right)$$

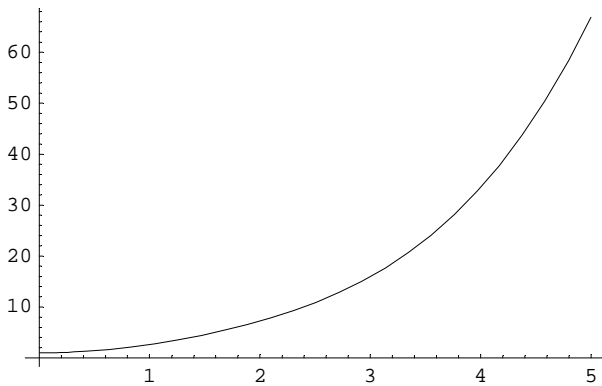


$$k1 = 1 \quad k2 = -2 / \quad y[x] = \frac{1}{540} e^{-2 x\$4965} \\ \left(325 - 250 e^9 x\$4965/5 - 405 e^{2 x\$4965} + 870 e^{3 x\$4965} - 270 e^{2 x\$4965} x\$4965 + 45 \text{Cos}[1] + 36 e^{3 x\$4965} \text{Cos}[1] - \right. \\ \left. 81 e^{2 x\$4965} \text{Cos}[1 - 2 x\$4965] - 45 \text{Sin}[1] + 72 e^{3 x\$4965} \text{Sin}[1] - 27 e^{2 x\$4965} \text{Sin}[1 - 2 x\$4965] \right)$$



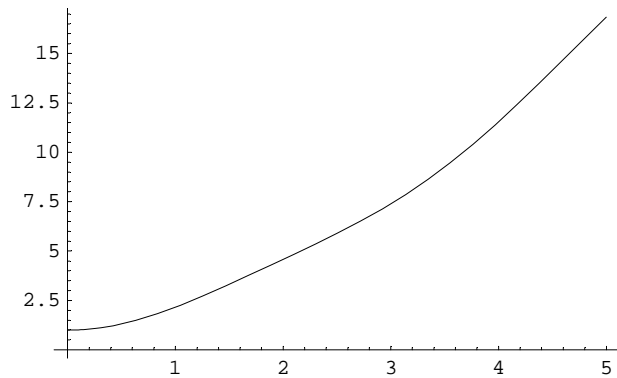
k1 = 1 k2 = -1 / y[x] =

$$\frac{1}{290} e^{-\frac{1}{10} (-3+5\sqrt{5}) x^{4987}} \left(-50 e^{\frac{1}{10} (-3+5\sqrt{5}) x^{4987}} \cos[1 - 2 x^{4987}] + e^{-4 x^{4987/5}} (560 - 160\sqrt{5} - 250 e^{\frac{1}{10} (3+5\sqrt{5}) x^{4987}} - 290 e^{\frac{1}{2} (1+\sqrt{5}) x^{4987}} (2 + x^{4987}) + 25 \cos[1] + 3\sqrt{5} \cos[1] + 10 \sin[1] - 22\sqrt{5} \sin[1] + e^{\sqrt{5} x^{4987}} (560 + 160\sqrt{5} + 25 \cos[1] - 3\sqrt{5} \cos[1] + 10 \sin[1] + 22\sqrt{5} \sin[1]) - 20 e^{\frac{1}{2} (1+\sqrt{5}) x^{4987}} \sin[1 - 2 x^{4987}]) \right)$$



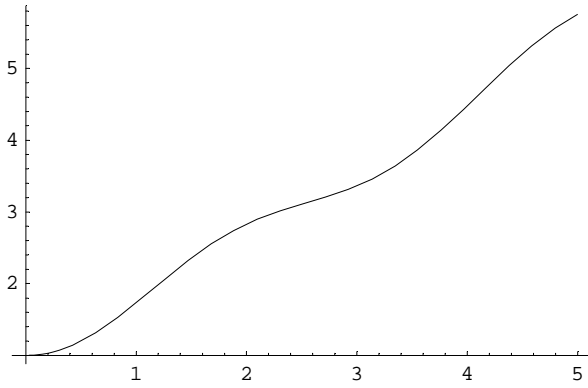
k1 = 1 k2 = 0 / y[x] =

$$\frac{1}{20} e^{-x^{5015}} (25 - 125 e^{4 x^{5015/5}} + 120 e^{x^{5015}} + 10 e^{x^{5015}} x^{5015^2} + 4 \cos[1] - 4 e^{x^{5015}} \cos[1 - 2 x^{5015}] - 8 \sin[1] + 10 e^{x^{5015}} \sin[1] - 2 e^{x^{5015}} \sin[1 - 2 x^{5015}])$$



k1 = 1 k2 = 1 / y[x] =

$$\frac{1}{273} e^{-x^{5030/2}} \left(325 e^{3 x^{5030/10}} + 273 e^{x^{5030/2}} x^{5030} - 21 e^{x^{5030/2}} \cos[x^{5030}]^2 (3 \cos[1] + 2 \sin[1]) + \cos\left[\frac{\sqrt{3} x^{5030}}{2}\right] (-52 + 63 \cos[1] + 42 \sin[1]) + 84 e^{x^{5030/2}} \cos[1] \cos[x^{5030}] \sin[x^{5030}] + 63 e^{x^{5030/2}} \cos[1] \sin[x^{5030}]^2 + 42 e^{x^{5030/2}} \sin[1] \sin[x^{5030}]^2 - 63 e^{x^{5030/2}} \sin[1] \sin[2 x^{5030}] - 156\sqrt{3} \sin\left[\frac{\sqrt{3} x^{5030}}{2}\right] - 35\sqrt{3} \cos[1] \sin\left[\frac{\sqrt{3} x^{5030}}{2}\right] + 98\sqrt{3} \sin[1] \sin\left[\frac{\sqrt{3} x^{5030}}{2}\right] \right)$$



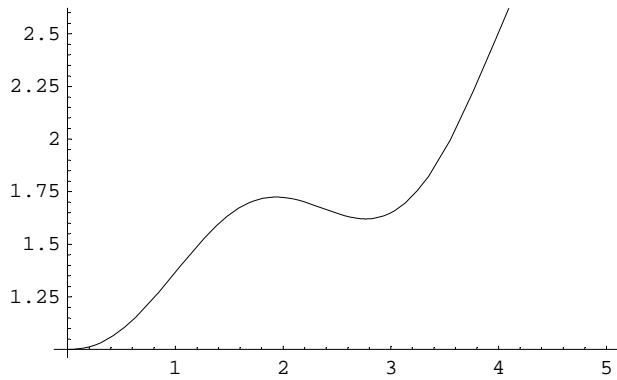
$$k1 = 1 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{644} e^{-x^{5068/2}}$$

$$\left(350 e^{3 x^{5068/10}} + 161 e^{x^{5068/2}} + 322 e^{x^{5068/2}} x^{5068} - 161 e^{x^{5068/2}} \cos[x^{5068}]^2 (\cos[1] + \sin[1]) + \right.$$

$$7 \cos\left[\frac{\sqrt{7} x^{5068}}{2}\right] (19 + 23 \cos[1] + 23 \sin[1]) + 161 e^{x^{5068/2}} \cos[1] \sin[x^{5068}]^2 +$$

$$161 e^{x^{5068/2}} \sin[1] \sin[x^{5068}]^2 + 161 e^{x^{5068/2}} (\cos[1] - \sin[1]) \sin[2 x^{5068}] -$$

$$\left. 53 \sqrt{7} \sin\left[\frac{\sqrt{7} x^{5068}}{2}\right] - 69 \sqrt{7} \cos[1] \sin\left[\frac{\sqrt{7} x^{5068}}{2}\right] + 115 \sqrt{7} \sin[1] \sin\left[\frac{\sqrt{7} x^{5068}}{2}\right] \right)$$



$$k1 = 1 \quad k2 = 3 \quad / \quad y[x] =$$

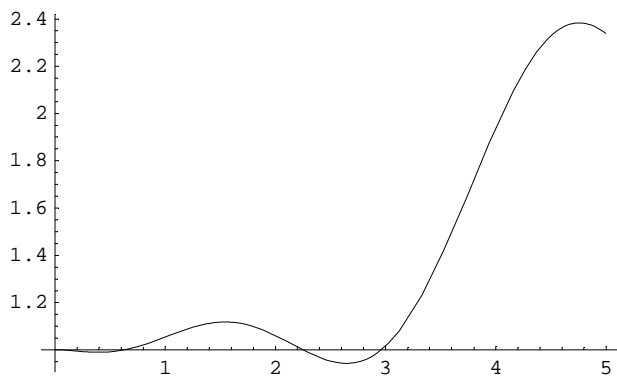
$$\frac{1}{35145} \left(e^{-x^{5106/2}} \left(12375 e^{3 x^{5106/10}} + 7810 e^{x^{5106/2}} + 11715 e^{x^{5106/2}} x^{5106} - 7029 e^{x^{5106/2}} \cos[x^{5106}]^2 \right. \right.$$

$$\left. (\cos[1] + 2 \sin[1]) + 11 \cos\left[\frac{\sqrt{11} x^{5106}}{2}\right] (1360 + 639 \cos[1] + 1278 \sin[1]) + \right.$$

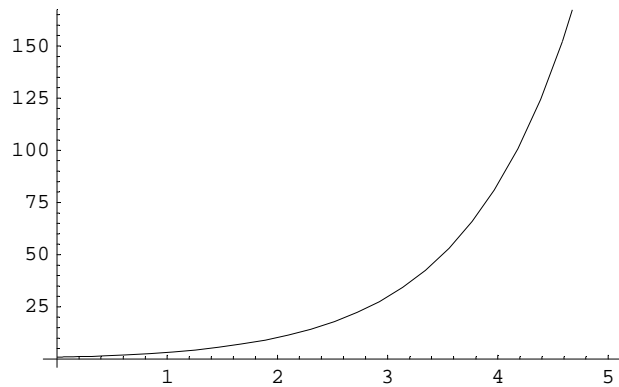
$$28116 e^{x^{5106/2}} \cos[1] \cos[x^{5106}] \sin[x^{5106}] + 7029 e^{x^{5106/2}} \cos[1] \sin[x^{5106}]^2 +$$

$$14058 e^{x^{5106/2}} \sin[1] \sin[x^{5106}]^2 - 7029 e^{x^{5106/2}} \sin[1] \sin[2 x^{5106}] - 320 \sqrt{11}$$

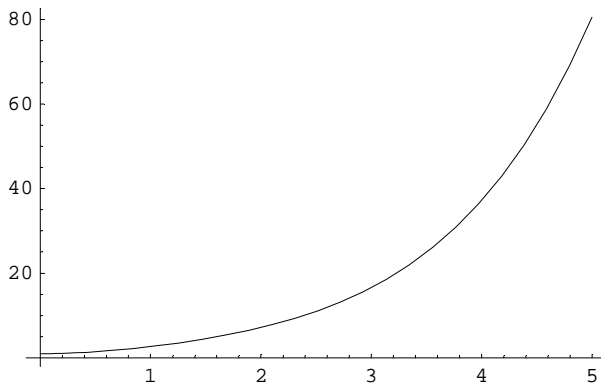
$$\left. \left. \sin\left[\frac{\sqrt{11} x^{5106}}{2}\right] - 4473 \sqrt{11} \cos[1] \sin\left[\frac{\sqrt{11} x^{5106}}{2}\right] + 3834 \sqrt{11} \sin[1] \sin\left[\frac{\sqrt{11} x^{5106}}{2}\right] \right) \right)$$



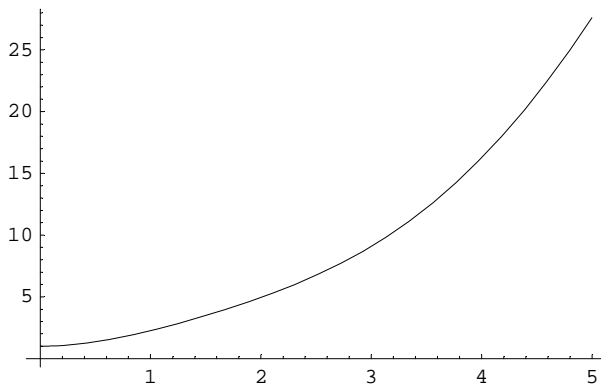
$$k1 = 2 \quad k2 = -3 / \quad y[x] = -\frac{5}{9} + \frac{199 e^{-3 x 5162}}{504} - \frac{25 e^{-x 5162/5}}{84} + \frac{35 e^{x 5162}}{24} - \frac{x 5162}{3} + \frac{3}{52} e^{-3 x 5162} \text{Cos}[1] + \frac{1}{20} e^{x 5162} \text{Cos}[1] - \frac{7}{65} \text{Cos}[1 - 2 x 5162] - \frac{1}{26} e^{-3 x 5162} \text{Sin}[1] + \frac{1}{10} e^{x 5162} \text{Sin}[1] - \frac{4}{65} \text{Sin}[1 - 2 x 5162]$$



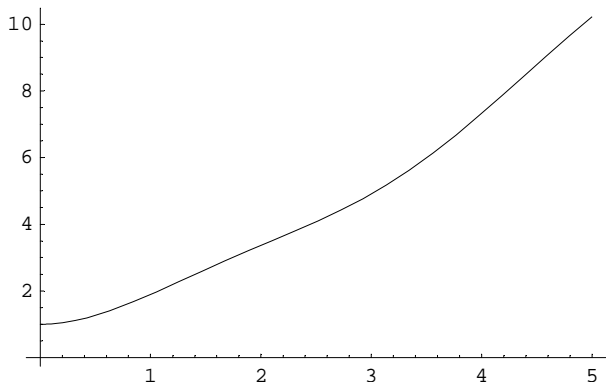
$$k1 = 2 \quad k2 = -2 / \quad y[x] = \frac{1}{9204} \left(e^{-\left(\frac{4}{5} + \sqrt{3}\right) x 5184} \left(-1062 e^{-\left(\frac{4}{5} + \sqrt{3}\right) x 5184} \text{Cos}[1 - 2 x 5184] + e^{-9 x 5184/5} \left(11154 - 4355 \sqrt{3} - 3900 e^{\left(\frac{4}{5} + \sqrt{3}\right) x 5184} - 4602 e^{x 5184 + \sqrt{3} x 5184} (2 + x 5184) + 531 \text{Cos}[1] + 59 \sqrt{3} \text{Cos}[1] + 354 \text{Sin}[1] - 472 \sqrt{3} \text{Sin}[1] + e^{2 \sqrt{3} x 5184} (13 (858 + 335 \sqrt{3}) - 59 (-9 + \sqrt{3}) \text{Cos}[1] + 118 (3 + 4 \sqrt{3}) \text{Sin}[1]) - 708 e^{x 5184 + \sqrt{3} x 5184} \text{Sin}[1 - 2 x 5184] \right) \right) \right)$$



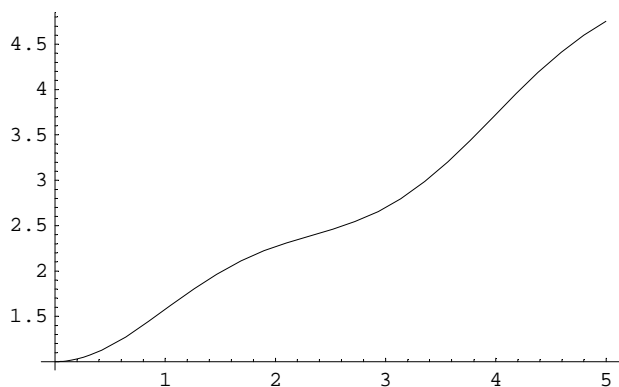
$$k1 = 2 \quad k2 = -1 / \quad y[x] = \frac{1}{2788} \left(e^{-\left(\frac{4}{5} + \sqrt{2}\right) x 5220} \left(-340 e^{-\left(\frac{4}{5} + \sqrt{2}\right) x 5220} \text{Cos}[1 - 2 x 5220] + e^{-9 x 5220/5} \left(6601 - 3895 \sqrt{2} - 2050 e^{\left(\frac{4}{5} + \sqrt{2}\right) x 5220} - 2788 e^{x 5220 + \sqrt{2} x 5220} (3 + x 5220) + 170 \text{Cos}[1] + 51 \sqrt{2} \text{Cos}[1] + 136 \text{Sin}[1] - 238 \sqrt{2} \text{Sin}[1] + e^{2 \sqrt{2} x 5220} (41 (161 + 95 \sqrt{2}) + (170 - 51 \sqrt{2}) \text{Cos}[1] + 34 (4 + 7 \sqrt{2}) \text{Sin}[1]) - 272 e^{x 5220 + \sqrt{2} x 5220} \text{Sin}[1 - 2 x 5220] \right) \right) \right)$$



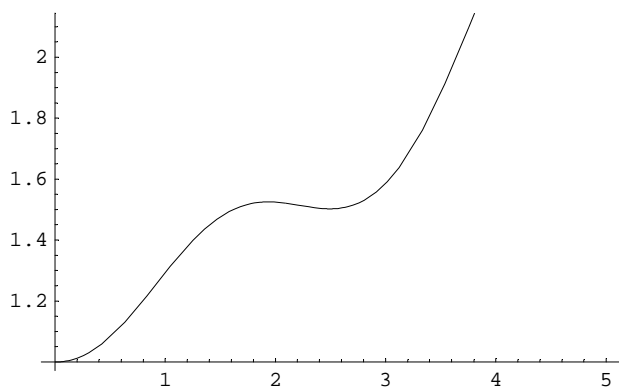
$$k1 = 2 \quad k2 = 0 \quad / \quad y[x] = \frac{1}{72} (243 + 29 e^{-2x^{5265}} - 200 e^{-x^{5265/5}} + 18 x^{5265} + 18 x^{5265^2} + 9 e^{-2x^{5265}} \cos[1] - 9 \cos[1 - 2x^{5265}] + 18 \sin[1] - 9 e^{-2x^{5265}} \sin[1] - 9 \sin[1 - 2x^{5265}])$$



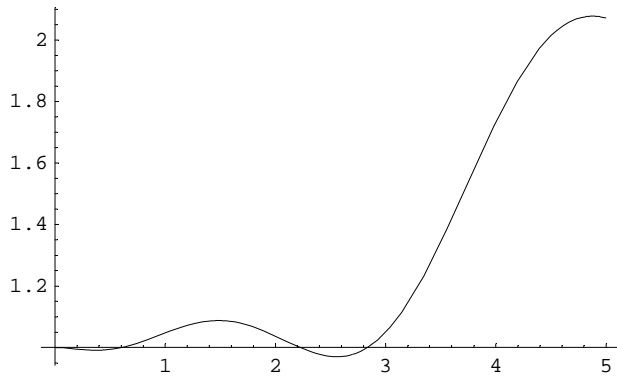
$$k1 = 2 \quad k2 = 1 \quad / \quad y[x] = \frac{1}{400} e^{-x^{5280}} (175 + 625 e^{4x^{5280/5}} - 400 e^{x^{5280}} - 100 x^{5280} + 400 e^{x^{5280}} x^{5280} + 48 \cos[1] - 80 x^{5280} \cos[1] - 48 e^{x^{5280}} \cos[1 - 2x^{5280}] + 64 \sin[1] + 160 x^{5280} \sin[1] - 64 e^{x^{5280}} \sin[1 - 2x^{5280}])$$



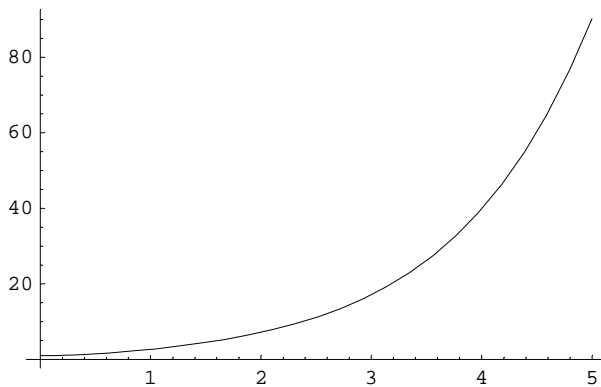
$$k1 = 2 \quad k2 = 2 \quad / \quad y[x] = \frac{1}{820} e^{-x^{5301}} (500 e^{4x^{5301/5}} + 410 e^{x^{5301}} x^{5301} - 82 e^{x^{5301}} \cos[1 - 2x^{5301}] + 205 \cos[1 - x^{5301}] + 320 \cos[x^{5301}] - 123 \cos[1 + x^{5301}] - 164 e^{x^{5301}} \sin[1 - 2x^{5301}] + 205 \sin[1 - x^{5301}] + 10 \sin[x^{5301}] - 41 \sin[1 + x^{5301}])$$



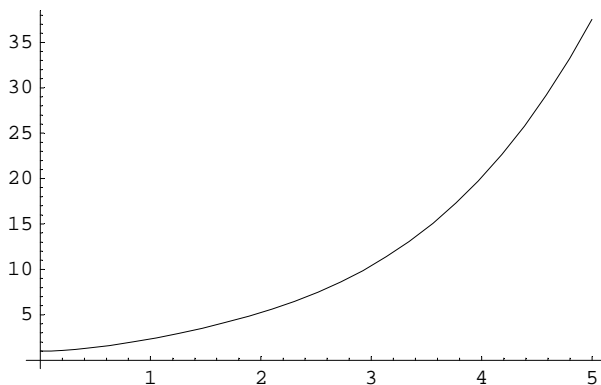
$$k1 = 2 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{3366} (e^{-x^{5322}} (1275 e^{4x^{5322/5}} + 374 e^{x^{5322}} + 1122 e^{x^{5322}} x^{5322} - 198 e^{x^{5322}} \cos[x^{5322}]^2 (\cos[1] + 4 \sin[1]) + \cos[\sqrt{2} x^{5322}] (1717 + 198 \cos[1] + 792 \sin[1]) - 396 e^{x^{5322}} \cos[x^{5322}] \sin[1] \sin[x^{5322}] + 198 e^{x^{5322}} \cos[1] \sin[x^{5322}]^2 + 792 e^{x^{5322}} \sin[1] \sin[x^{5322}]^2 + 792 e^{x^{5322}} \cos[1] \sin[2x^{5322}] + 425 \sqrt{2} \sin[\sqrt{2} x^{5322}] - 693 \sqrt{2} \cos[1] \sin[\sqrt{2} x^{5322}] + 594 \sqrt{2} \sin[1] \sin[\sqrt{2} x^{5322}]))$$



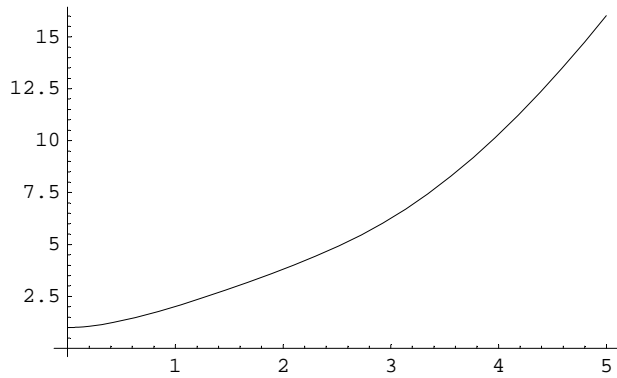
$$k1 = 3 \quad k2 = -3 / \quad y[x] = \frac{1}{953190} \left(e^{-\frac{1}{10}(-13+5\sqrt{21})x^{5358}} \left(-78498 e^{\frac{1}{10}(-13+5\sqrt{21})x^{5358}} \cos[1 - 2x^{5358}] + e^{-14x^{5358}/5} \right. \right. \\ \left. \left. (928200 - 145180\sqrt{21} - 267750 e^{\frac{1}{10}(13+5\sqrt{21})x^{5358}} - 317730 e^{\frac{1}{2}(3+\sqrt{21})x^{5358}} (2 + x^{5358}) + \right. \right. \\ \left. \left. 39249 \cos[1] + 801\sqrt{21} \cos[1] + 33642 \sin[1] - 12282\sqrt{21} \sin[1] + \right. \right. \\ \left. \left. e^{\sqrt{21}x^{5358}} (-801(-49 + \sqrt{21}) \cos[1] + 2(1190(390 + 61\sqrt{21}) + 267(63 + 23\sqrt{21}) \sin[1])) - \right. \right. \\ \left. \left. 67284 e^{\frac{1}{2}(3+\sqrt{21})x^{5358}} \sin[1 - 2x^{5358}] \right) \right)$$



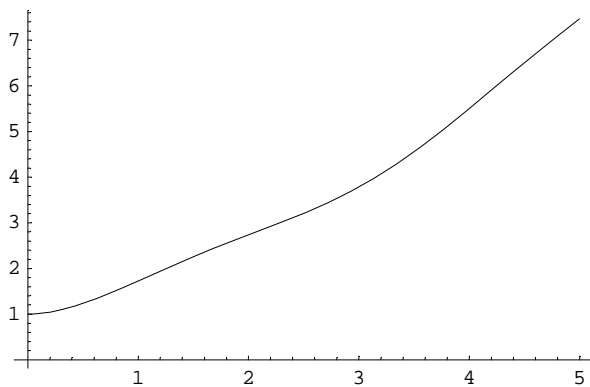
$$k1 = 3 \quad k2 = -2 / \quad y[x] = \frac{1}{6528} \left(e^{-\frac{1}{10}(-13+5\sqrt{17})x^{5386}} \left(-544 e^{\frac{1}{10}(-13+5\sqrt{17})x^{5386}} \cos[1 - 2x^{5386}] + e^{-14x^{5386}/5} \right. \right. \\ \left. \left. (8619 - 1683\sqrt{17} - 2550 e^{\frac{1}{10}(13+5\sqrt{17})x^{5386}} - 1632 e^{\frac{1}{2}(3+\sqrt{17})x^{5386}} (5 + 2x^{5386}) + 272 \cos[1] + \right. \right. \\ \left. \left. 16\sqrt{17} \cos[1] + 272 \sin[1] - 112\sqrt{17} \sin[1] + e^{\sqrt{17}x^{5386}} (51(169 + 33\sqrt{17}) - \right. \right. \\ \left. \left. 16(-17 + \sqrt{17}) \cos[1] + 16(17 + 7\sqrt{17}) \sin[1]) - 544 e^{\frac{1}{2}(3+\sqrt{17})x^{5386}} \sin[1 - 2x^{5386}] \right) \right)$$



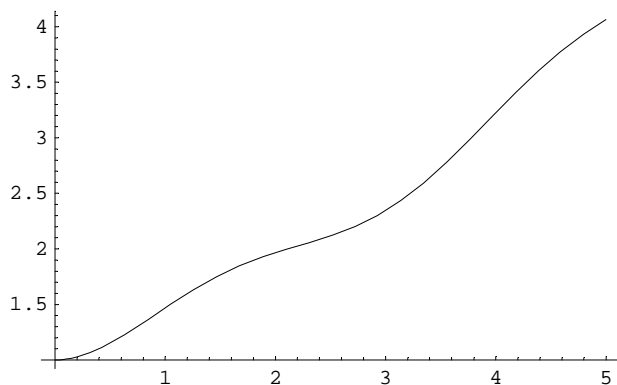
$$k1 = 3 \quad k2 = -1 / \quad y[x] = \frac{1}{4758} \left(e^{-\frac{1}{10}(-13+5\sqrt{13})x^{5423}} \left(-390 e^{\frac{1}{10}(-13+5\sqrt{13})x^{5423}} \cos[1 - 2x^{5423}] + e^{-14x^{5423}/5} \right. \right. \\ \left. \left. (13420 - 3416\sqrt{13} - 3050 e^{\frac{1}{10}(13+5\sqrt{13})x^{5423}} - 4758 e^{\frac{1}{2}(3+\sqrt{13})x^{5423}} (4 + x^{5423}) + 195 \cos[1] + \right. \right. \\ \left. \left. 27\sqrt{13} \cos[1] + 234 \sin[1] - 114\sqrt{13} \sin[1] + e^{\sqrt{13}x^{5423}} (13420 + 3416\sqrt{13} + 195 \cos[1] - \right. \right. \\ \left. \left. 27\sqrt{13} \cos[1] + 234 \sin[1] + 114\sqrt{13} \sin[1]) - 468 e^{\frac{1}{2}(3+\sqrt{13})x^{5423}} \sin[1 - 2x^{5423}] \right) \right)$$



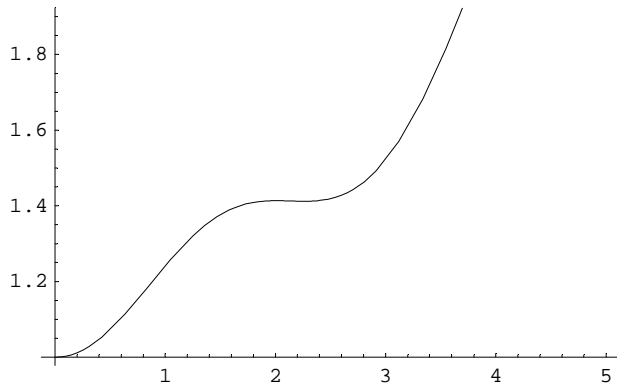
$$k1 = 3 \quad k2 = 0 / \quad Y[x] = \frac{70}{27} + \frac{73 e^{-3 x^{5451}}}{378} - \frac{25 e^{-x^{5451/5}}}{14} + \frac{2 x^{5451}}{9} + \frac{x^{5451^2}}{6} + \frac{1}{13} e^{-3 x^{5451}} \cos[1] - \frac{1}{13} \cos[1 - 2 x^{5451}] + \frac{\sin[1]}{6} - \frac{2}{39} e^{-3 x^{5451}} \sin[1] - \frac{3}{26} \sin[1 - 2 x^{5451}]$$



$$k1 = 3 \quad k2 = 1 / \quad Y[x] = -\frac{1}{330} e^{-\frac{1}{10} (-13+5\sqrt{5}) x^{5466}} \left(22 e^{\frac{1}{10} (-13+5\sqrt{5}) x^{5466}} \cos[1 - 2 x^{5466}] + e^{-14 x^{5466/5}} (-120 + 36 \sqrt{5} - 750 e^{\frac{1}{10} (13+5\sqrt{5}) x^{5466}} - 330 e^{\frac{1}{2} (3+\sqrt{5}) x^{5466}} (-2 + x^{5466}) - 11 \cos[1] - 11 \sqrt{5} \cos[1] - 22 \sin[1] + 22 \sqrt{5} \sin[1] + e^{\sqrt{5} x^{5466}} (11 (-1 + \sqrt{5}) \cos[1] - 2 (60 + 18 \sqrt{5} + 11 (1 + \sqrt{5}) \sin[1])) + 44 e^{\frac{1}{2} (3+\sqrt{5}) x^{5466}} \sin[1 - 2 x^{5466}] \right)$$



$$k1 = 3 \quad k2 = 2 / \quad Y[x] = -\frac{1}{180} e^{-2 x^{5494}} (35 - 135 e^{x^{5494}} - 125 e^{9 x^{5494/5}} + 45 e^{2 x^{5494}} - 90 e^{2 x^{5494}} x^{5494} - 45 \cos[1] + 36 e^{x^{5494}} \cos[1] + 9 e^{2 x^{5494}} \cos[1 - 2 x^{5494}] + 45 \sin[1] - 72 e^{x^{5494}} \sin[1] + 27 e^{2 x^{5494}} \sin[1 - 2 x^{5494}])$$



$$k1 = 3 \quad k2 = 3 \quad / \quad y[x] = \frac{1}{20313}$$

$$\left(e^{-3 x^{5513/2}} \left(8325 e^{13 x^{5513/10}} + 6771 e^{3 x^{5513/2}} x^{5513} - 549 e^{3 x^{5513/2}} \cos[x^{5513}]^2 (\cos[1] + 6 \sin[1]) + \right. \right. \\ \left. \left. 9 \cos\left[\frac{\sqrt{3} x^{5513}}{2}\right] (1332 + 61 \cos[1] + 366 \sin[1]) + \right. \right. \\ \left. \left. 6588 e^{3 x^{5513/2}} \cos[1] \cos[x^{5513}] \sin[x^{5513}] + 549 e^{3 x^{5513/2}} \cos[1] \sin[x^{5513}]^2 + \right. \right. \\ \left. \left. 3294 e^{3 x^{5513/2}} \sin[1] \sin[x^{5513}]^2 - 549 e^{3 x^{5513/2}} \sin[1] \sin[2 x^{5513}] + \right. \right. \\ \left. \left. 8584 \sqrt{3} \sin\left[\frac{\sqrt{3} x^{5513}}{2}\right] - 3843 \sqrt{3} \cos[1] \sin\left[\frac{\sqrt{3} x^{5513}}{2}\right] + 4026 \sqrt{3} \sin[1] \sin\left[\frac{\sqrt{3} x^{5513}}{2}\right] \right) \right)$$

