

# Übungen in Analysis $\diamond$ Exercices en Analyse $\diamond$ T. B2 $\diamond$ II / 7

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$$F'(x) := f(x), \quad A := \int_{x_1}^{x_2} f(x) dx$$

**Probl. 1**  $f(x) = 3 \sin(x) + 2x \cos(x) \rightsquigarrow F(x) = ?$

**Probl. 2**  $f(x) = 5x^3 - 2x^2 + 3x + 4 \rightsquigarrow \int f(x) dx = ?$

**Probl. 3**  $f(x) = \frac{\ln(x)}{x} + e^x \rightsquigarrow F(x) = ?$

**Probl. 4**  $\int_1^5 5x^3 - 2x^2 + 3x + 4 dx = ?$

**Probl. 5**  $\int_0^{\pi} \cos(x) dx = ?$

**Probl. 6**  $\int_0^{\pi} \sin(x) dx = ?$

**Probl. 7**  $\int_0^2 a x^2 dx = 4 \rightsquigarrow a = ?$

**Probl. 8**  $\int_1^b x^2 dx = 4 \rightsquigarrow b = ?$

**Probl. 9**  $f(x) = x^3, \quad g(x) = ax + b, \quad f(0) = g(0), \quad f(x_1) = g(x_1)$   
 $\int_0^{x_1} g(x) dx - \int_0^{x_1} f(x) dx = 10 \rightsquigarrow x_1 = ?$

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