

Probl. 1 $\int_0^1 a \cdot x (e^x - e^{-x}) dx = ?$

Probl. 2 $\frac{d}{dt} \int_0^1 t \cdot e^x dx = ?$

Probl. 3 $\int_1^2 x \cdot \ln(x) dx = ?$

Probl. 4 $\int_1^2 x^2 \cdot \ln(x) dx = ?$

Probl. 5 $\int_0^{\pi} \sin(\pi \cdot x + 1) dx = ?$

Probl. 6 $\int_0^{\pi} x^2 \cdot \sin(\pi \cdot x + 1) dx = ?$

Probl. 7 $\int_0^{\pi} (x \cdot \sin(x) - x \cdot \sin(x^2)) dx = ?$

Probl. 8 $f(x) = -\frac{4}{\pi^2} \cdot x^2 + 1, \quad g(x) = \cos(x)$

(a) Skizze: • *Esquisse:* $f(x), g(x), f(x) - g(x)$

(b) $\int_{-\pi/2}^{\pi/2} (f(x) - g(x)) dx = ?$

Probl. 9 $\int_0^t x^2 dx = \frac{1}{12} \Rightarrow t = ?$