

Probl. 1 $\int_0^{2\pi} (2 + \cos(x) - \sin(x)) dx = ?$ Skizze? • *Esquisse?*

Probl. 2 $\int \frac{x^4}{4} + \frac{x^3}{3} - 3x^2 + 2x - 4 dx = ?$

Probl. 3 $g(t) := \int_0^1 (t^2 + 2t) \cdot e^x dx$
 $\leadsto t_0 = \text{Minimum von } g(t) \bullet t_0 = \text{Minimum von } g(t) \leadsto t_0 = ?$

Probl. 4 $\int_0^\pi \cos(2x\pi) dx = ?$, $\int_0^\pi a \cos(2x\pi - \frac{\pi}{2}) dx = ?$

Probl. 5 $\int_1^e x^3 \ln(x) dx = ?$

Probl. 6 $\int_0^\pi x \cdot \sin(x \cdot \pi) dx = ?$

Probl. 7 $\Delta V = r(x)^2 \cdot \pi \cdot \Delta x$, $V \approx \sum \Delta V \rightarrow \int dV = \int_0^1 r(x)^2 \cdot \pi dx$
 $r(x) = (x^2 + 1) \Rightarrow \pi \cdot \int_0^1 (x^2 + 1)^2 dx = ?$

Skizze? • *Esquisse?*

Probl. 8 $\int_0^1 x \cdot e^{-x^2} dx = ?$

Viel Glück! • *Bonne chance!*