

## Übungen in Analysis $\diamond$ Exercices en analyse $\diamond$ Type B2 $\diamond$ I / 8

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**Probl. 1**  $f(x) = e^{(x^2 - \cos(2x))} \rightsquigarrow f$  gerade/ ungerade? •  $f$  paire/ impaire?

**Probl. 2**  $f(x) = y = e^{-x^2}$

(a)  $x \geq 0 \rightsquigarrow f^{-1}(x) = ?$  Skizze! • *Esquisse!*

(b)  $f^{-1}(0.5) \approx ?$

**Probl. 3**  $\log(x^2) + \log\left(\frac{1}{x}\right) - \log(x) = ?$

**Probl. 4**  $\sin\left(x + \frac{\pi}{3}\right) = \sin(x) \cdot (?) + \cos(x) \cdot (?)$

(a)  $\sin\left(x + \frac{\pi}{3}\right) = \sin(x) \cdot (?) + \cos(x) \cdot (?)$

(b)  $\tan\left(x + \frac{\pi}{3}\right) = \dots ? \dots$

**Probl. 5**  $r(\varphi) = 1 + \cos\left(\frac{\varphi}{2}\right) \rightsquigarrow$  Polar... Skizze! • *Polaire... esquisse!*

**Probl. 6**  $2 \cdot 3^x = 5^x \rightsquigarrow x = ?$

**Probl. 7**  $0.367\overline{367} \dots = \frac{p}{q}$ ,  $p, q \in \mathbb{N} \rightsquigarrow p, q = ?$