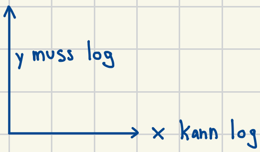
Aufgabe 3

ⓘ $\log(c \cdot a^x) = \log(c) + \log(a^x)$
$= \log(c) + x \cdot \log(a)$

a) (I) $y = \underbrace{\log(c)}_{\text{b in log}} + x \cdot \underbrace{\log(a)}_{m}$

(II) $y = \underbrace{\log(c)}_{\text{b in log}} + a \cdot \underbrace{\log(x)}_{\text{x in log}}$



→ Form von $y = m \cdot x + b$ also Gerade

i) $y = \frac{5}{\sqrt[3]{2x^2}} = 5 \cdot 2^{-1/3} \cdot x^{-2/3}$

$= \log(5 \cdot 2^{-1/3}) - 2/3 \cdot \log(x)$ → Form II, x und y Achse in log

Steigung $= -2/3$, y-Achse: $\log(5 \cdot 2^{-1/3})$

ii) $\log(10^5) + \log(2e^{-x/100})$

$\log(10^5) - (x/100) \cdot \log(2e)$

Steigung $= \log(2e)$, y-Achse: $\log(10^5)$ → Form I, nur y Achse in log

iii) $\frac{10^{4x}}{2^{10x}} = 10^{4x} \cdot 2^{-10x}$

$= 4x \cdot \log(10) - 10x \cdot \log(2)$

$= 0 + x(4\log(10) - 10\log(2))$

Steigung $= 4\log(10) - 10\log(2) = \log(\frac{625}{64})$, y-Achse: $\log(1) = 0$ → Form I, nur y Achse in log