

$$1) \quad \sqrt[3]{\sqrt{a^4} \sqrt[3]{a^3} \sqrt[3]{a^1} a^2}$$

$$\left(\left(a^4 a^{3/2} a^{1/3} \right)^{1/2} a^2 \right)^{1/3}$$

$$\left(a^{\frac{24+9+2}{6}} \right)^{1/6} a^{2/3}$$

$$a^{35/36} \cdot a^{24/36} \cdot a^{59/36} = \sqrt[36]{a^{59}}$$

$$2) \quad \frac{3 \cdot 2^7 x^{-4} y^{-6} \cdot 8 \cdot 3^7 a^9 b^{-6}}{4 \cdot 3^3 a^9 b^{-6} \cdot 9 \cdot 2^3 x^{-3} y^{-6}}$$

$$\frac{3 \cdot 2^2 \cdot 8 \cdot 3^7 \cdot a^9 \cdot b^{-6}}{4 \cdot 3^3 \cdot 9 \cdot 2^3 \cdot x^4 y^6} = \frac{1}{9 \cdot x a}$$

$$\begin{aligned}
 & \frac{42}{x} \cdot \frac{(2u+5) \cdot 2}{u} \rightarrow \frac{4u+10}{u} \\
 & \frac{2u-3}{u} \leftarrow \frac{4u-6}{2u} \cdot \frac{(6-u) \cdot 2}{u/2} \rightarrow \frac{24-4u}{u} \\
 & \quad \times \frac{2 \cdot (3-2u)}{u} \rightarrow \frac{6-4u}{u} \\
 & \frac{-10 - (2u-3) + (6-4u) \quad (4u+10) - (24-4u)}{u} \\
 & 42 \cdot x \\
 & 42 \cdot x \frac{2u-15}{u} \\
 & \rightarrow \frac{42}{x} \cdot \frac{x \frac{6-4u}{u}}{x \frac{2u-3}{u}}
 \end{aligned}$$

$$3^x = 15 \quad | \log$$

$$x \cdot \log 3 = \log 15 \quad | : \log 3$$

$$x = \frac{\log 15}{\log 3} = \log_3 15$$

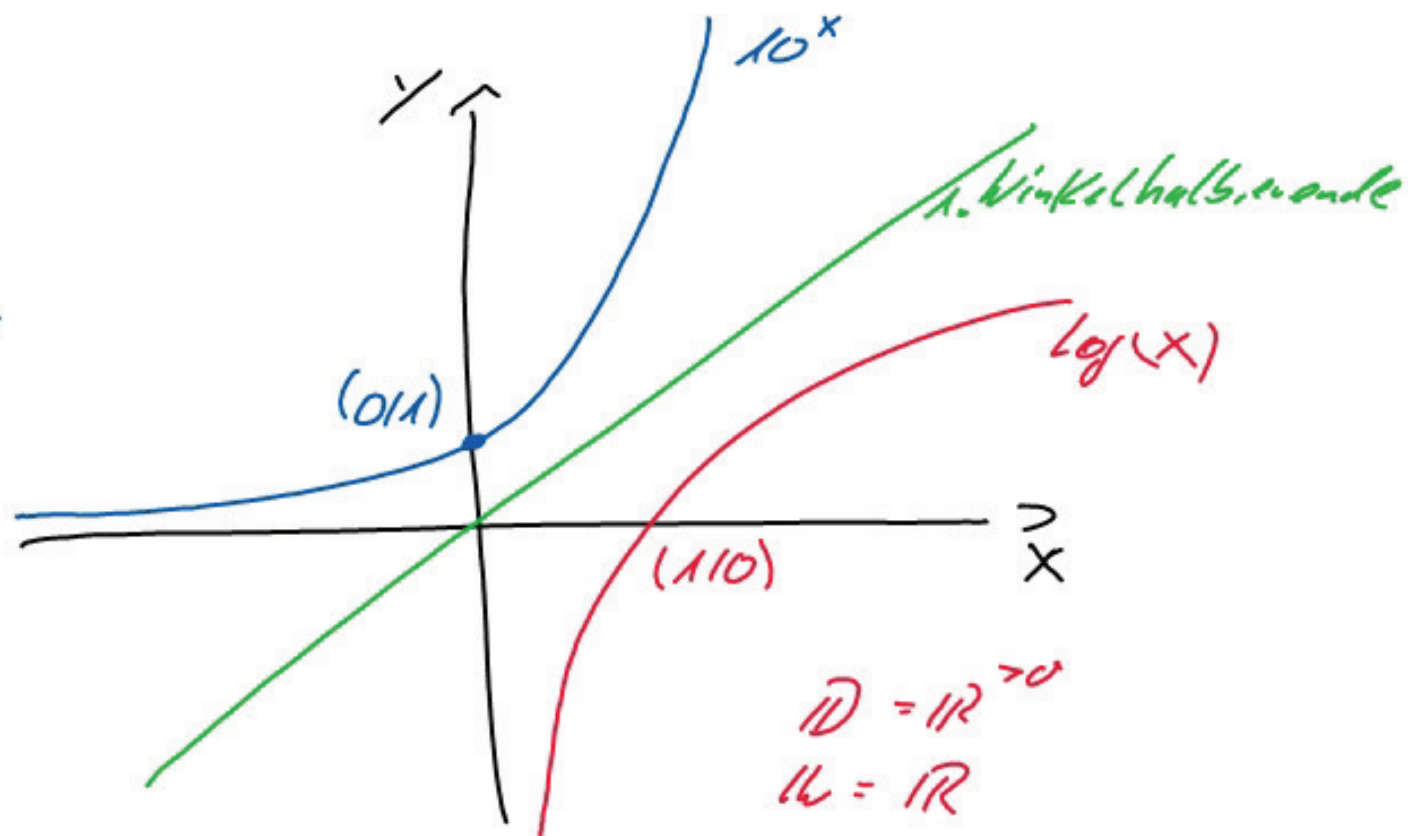
$$\log_{10} 10 = y \quad \Leftrightarrow \quad 10^y = 10$$

$$\log_{10} (-10) = y \quad \Leftrightarrow \quad 10^y = -10$$

$$10^x$$

$$D = \mathbb{R}$$

$$W = \mathbb{R}^{>0}$$



$$D = \mathbb{R}^{>0}$$

$$W = \mathbb{R}$$

$f(x) \rightarrow y$ -Koordinate
 $f'(x) \rightarrow$ Steigung
 $f''(x) \rightarrow$ Krümmung

$$\lim_{x \rightarrow \infty} [\ln(x)]' = \lim_{x \rightarrow \infty} \left(\frac{1}{x}\right) = 0$$