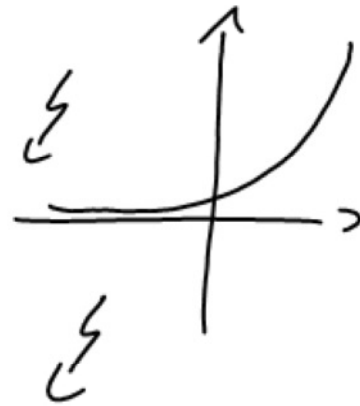


$$\log_{10} 0 = x \quad (\Leftrightarrow) \quad 10^x = 0$$



$$\log_2 -16 = x \quad (\Leftrightarrow) \quad 2^x = -16$$

$$\ln \sqrt{x} = \ln x^{1/2} = \frac{1}{2} \cdot \ln(x)$$

$$\log \frac{1}{x^3} = \log x^{-3} = -3 \log(x)$$

$$1) \lg \frac{1}{100} - \sqrt{e}^{\ln 4} + 4 \cdot \lg 3 - 2 \lg 0,25$$

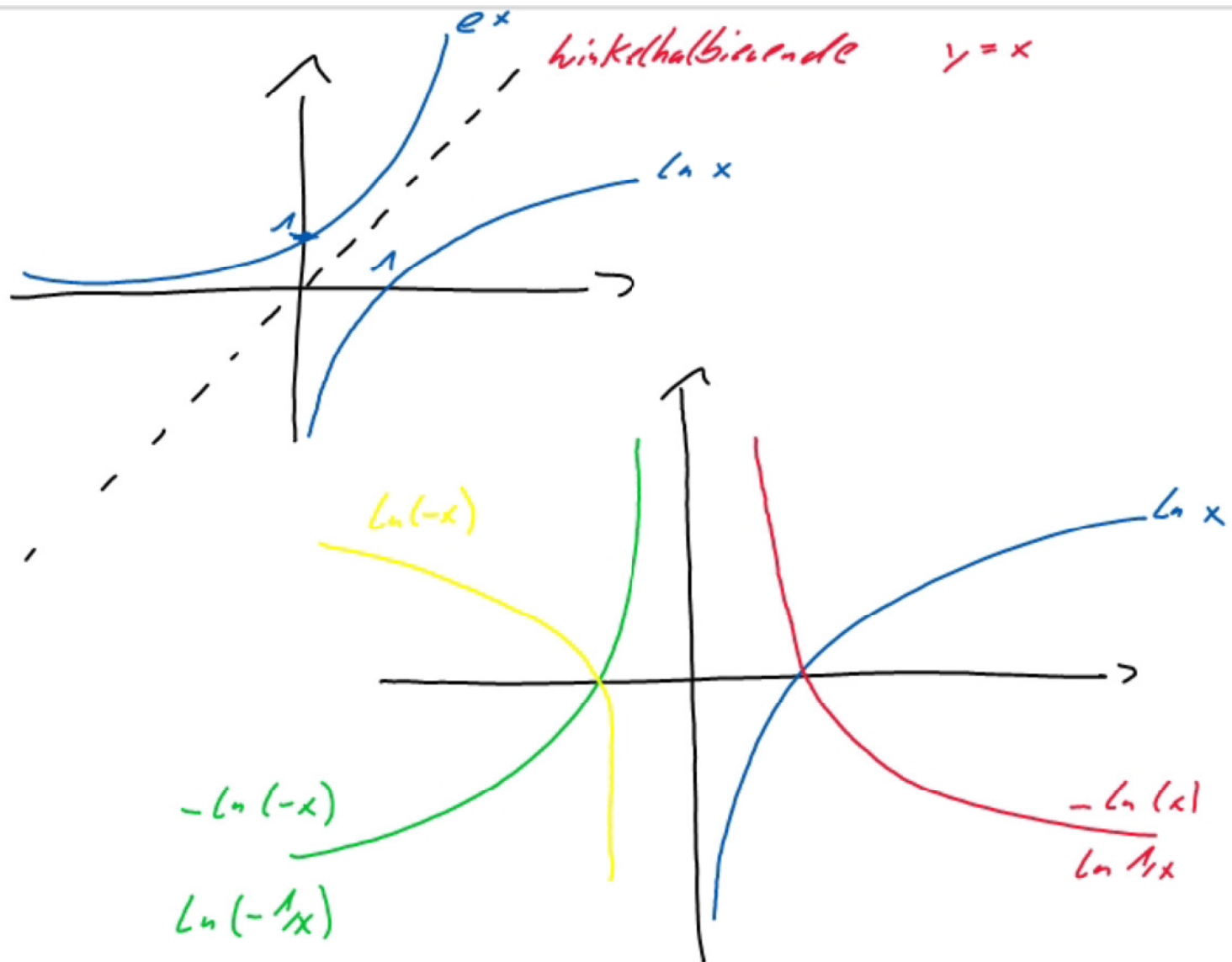
$$\lg 10^{-2} - e^{\frac{1}{2} \ln 4} + 2 \cdot \lg 3 - 2 \lg 5^{-2}$$

$$-2 - 2 + 9 + 4 = 9$$

$$2) 100 \lg 3 - \ln \frac{1}{e^2} + 0,5 \lg 16 - e^{-3 \ln \frac{1}{2}}$$

$$10^2 \lg 3 - \ln e^{-2} + 0,5 \lg 2^4 - e^{\ln 8} \left(\left(\frac{1}{2} \right)^{-3} \right)$$

$$9 + 2 + 2 - 8 = 5$$



$$1) 3 \cdot \log x - 4 \cdot \log \frac{2}{x} - \frac{1}{3} \log (x^3)^6 = \frac{2}{3} \log 27 + \frac{1}{2} \log x^4 - 2 \cdot \log 6$$

1. Faktoren in den Exponenten

$$\log x^3 - \log \left(\frac{2}{x}\right)^4 - \log (x^3)^2 = \log 27^{\frac{2}{3}} + \log x^2 - \log 6^2$$

2. Superbruchstrich : + nach oben ; - nach unten

$$\log \frac{x^3}{2^{\frac{4}{x^4}} x^4} = \log \frac{3^2 x^2}{6^2} \quad | \cdot 10^x$$

3. Log eliminieren

$$\frac{x^3}{2^4} = \frac{3^2 x^2}{6^2} \quad | \cdot 2^4$$

$$: x^2$$

4. Aufräumen / lösen

$$x = \frac{9 \cdot 16}{36} = 4$$