$$x = \sqrt{\underbrace{3x+28}_{x=-28/3}} \quad | \uparrow^2 \qquad \mathbb{D} = x \in \mathbb{R}^{\geq -28/3}$$

$$x^2 = 3x + 28 \quad | -3x - 28$$

$$x^2 - 3x - 28 = 0$$

Nullform –

$$(x-7)\cdot(x+4) = 0$$

$$x_1 = 7 \quad \vee \quad x_2 = -4$$

Einsetzen

Probe: $x_1 = 7 \;:\; 7 = \sqrt{21+28} = \sqrt{49} = 7$ ✓

$x_2 = -4 \;:\; -4 = \sqrt{-12+28} = \sqrt{16} = 4$ ↯

$$\mathbb{L} = \{7\}$$

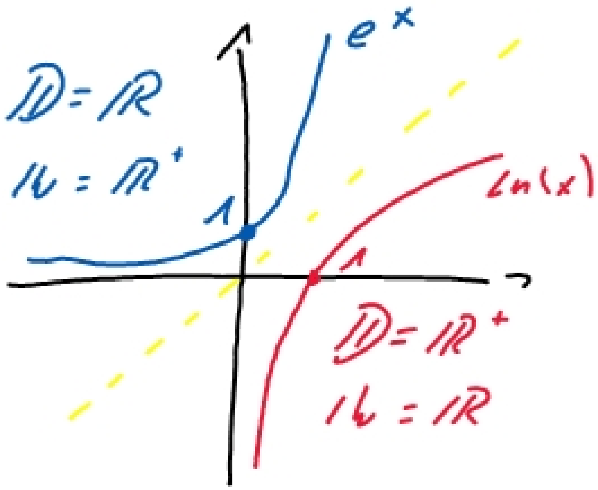
Lösung

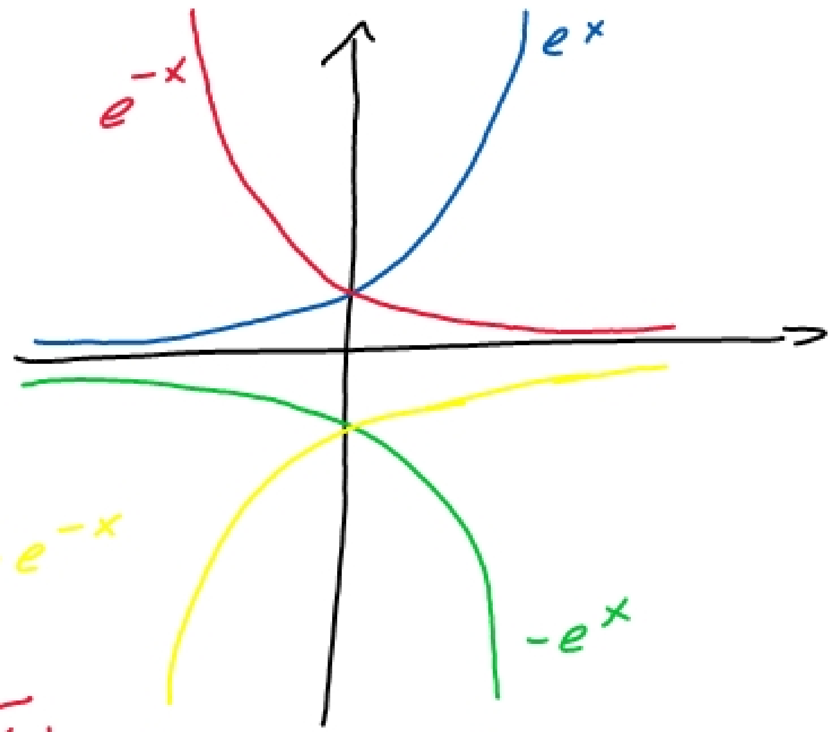
3) $$\frac{1}{6}\,\mathrm{ld}\,2^3 + 3\cdot e^{2\ln \frac{1}{2}} - \lg\sqrt{10} + 4\cdot\left(2^{4\,\mathrm{ld}\,\frac{1}{2}} - 8\ln\frac{1}{\sqrt{e}}\right) - 4\cdot 10^{\frac{1}{4}\lg 256}$$

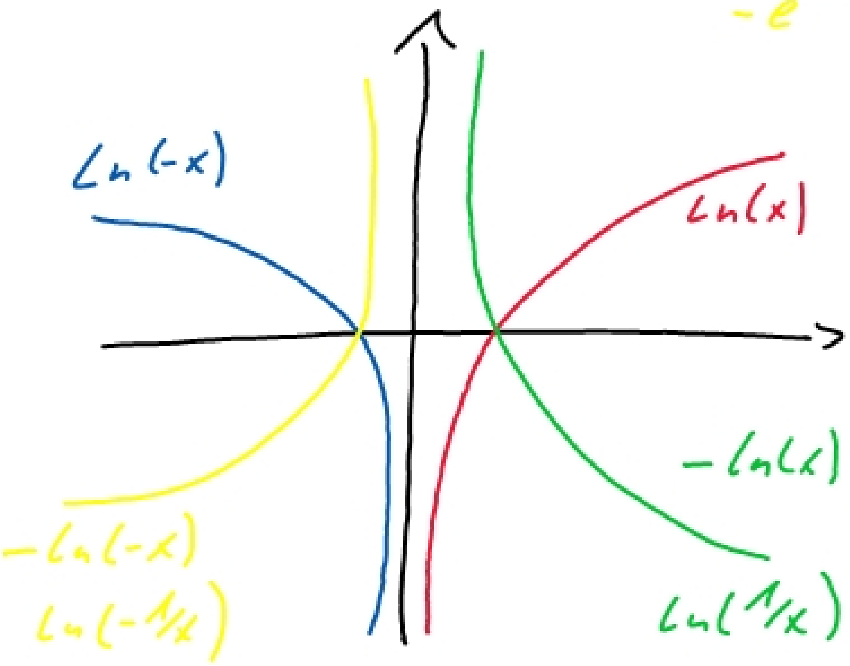
$$\frac{1}{6}\cdot 3 + 3\cdot e^{\ln\left(\frac{1}{2}\right)^2} - \lg 10^{\frac{1}{2}} + 4\cdot\left(2^{4\cdot\mathrm{ld}\,2^{-1}} - 8\cdot\ln e^{-\frac{1}{2}}\right) - 4\cdot 10^{\lg 256^{\frac{1}{4}}}$$

$$\frac{1}{2} + \frac{3}{4} - \frac{1}{2} + 4\cdot\left(2^{-4} - 8\cdot\left(-\frac{1}{2}\right)\right) - 4\cdot 4$$

$$\frac{1}{2} + \frac{3}{4} - \frac{1}{2} + \frac{1}{4} + 16 - 16 = 1$$







$$f(x) = \ln \heartsuit$$

$$f'(x) = \frac{1}{\heartsuit} \cdot \heartsuit'$$

$$f(x) = \ln(\cos(x))$$

$$f'(x) = \frac{1}{\cos(x)}(-\sin(x)) = -\frac{\sin(x)}{\cos(x)}$$

$$= -\tan(x)$$

2) $3 \cdot \ln 4 - \frac{1}{2} \cdot \ln \frac{16}{x^4} + 2 \cdot \ln 8 = \frac{3}{2} \ln x^4 - 8 \ln \sqrt[4]{\frac{1}{x}} - 2 \cdot \ln \frac{1}{4}$

$$\ln 4^3 - \ln \left(\frac{16}{x^4}\right)^{1/2} + \ln 8^2 = \ln \left(x^4\right)^{3/2} - \ln\left(\left(\left(\frac{1}{x}\right)^{1/4}\right)^8\right) - \ln \left(\frac{1}{4}\right)^2$$

$$\ln \frac{4^3 \quad 8^2}{4/x^2} = \ln \frac{x^6}{1/x^2 \quad 1/4^2} \qquad | \, e^x$$

$$\underline{4}^2 x^2 \cdot 8^2 = x^8 \cdot \underline{4}^2 \qquad | :x^2 \quad :4^2$$

$$8^2 = x^6 \quad \Rightarrow \quad x = \sqrt[6]{64} = 2$$