

Aufgabe i.4 a

$$f(x) = x^{-1}$$

$$\hookrightarrow f'(x) = -x^{-2} \quad ; \quad f'(x) = -\frac{1}{x^2}$$

$$m_{t_1} = -3 \quad \rightarrow \quad f'(x) = -3$$

$$\hookrightarrow -\frac{1}{x^2} = -3 \quad \rightarrow \quad x^2 = \frac{1}{3} \quad \rightarrow \quad \underline{x_1 = \sqrt{\frac{1}{3}}} \quad ; \quad x_1 \approx 0,577 \quad ; \quad x_2 = -\sqrt{\frac{1}{3}}$$

$$y_1 = f(x_1) \quad \rightarrow \quad y_1 = \frac{1}{\sqrt{\frac{1}{3}}} \quad \rightarrow \quad \underline{y_1 = \sqrt{3}} \quad ; \quad y_1 \approx 1,732$$

$$t_1: y_1 = -3 \cdot x_1 + b_1$$

$$\hookrightarrow \sqrt{3} = -3 \cdot \sqrt{\frac{1}{3}} + b_1 \quad \rightarrow \quad \sqrt{3} = -\sqrt{3} + b_1 \quad \rightarrow \quad \underline{b_1 = 2 \cdot \sqrt{3}} \quad ; \quad b_1 \approx 3,464$$

$$\underline{t_1: y = -3x + 2 \cdot \sqrt{3}} \quad ; \quad t_1: y = -3x + 3,464$$

Aufgabe i.4 b:

$$m_{t_2} = -\frac{1}{2} \quad \rightarrow \quad f'(x) = -\frac{1}{2}$$

$$\hookrightarrow -\frac{1}{x^2} = -\frac{1}{2} \quad \rightarrow \quad x^2 = 2 \quad \rightarrow \quad \underline{x_1 = \sqrt{2}} \quad ; \quad x_1 \approx 1,414 \quad ; \quad x_2 = -\sqrt{2}$$

$$y_1 = f(x_1) \quad \rightarrow \quad \underline{y_1 = \frac{1}{\sqrt{2}}} \quad ; \quad y_1 \approx 0,707$$

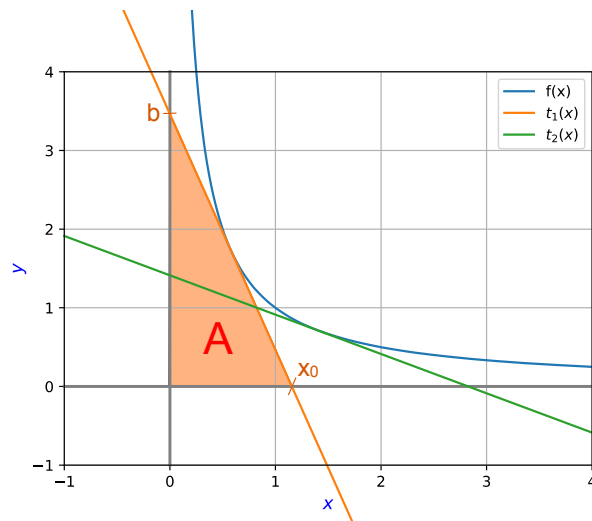
$$t_2: y_1 = -\frac{1}{2} \cdot x_1 + b_2$$

$$\hookrightarrow \frac{1}{\sqrt{2}} = -\frac{1}{2} \cdot \sqrt{2} + b_2 \quad \rightarrow \quad \frac{1}{\sqrt{2}} = -\frac{1}{\sqrt{2}} + b_2 \quad \rightarrow \quad b_2 = \frac{2}{\sqrt{2}} \quad \rightarrow \quad \underline{b_2 = \sqrt{2}} \quad ; \quad b_2 \approx 1,414$$

$$\underline{t_2: y = -\frac{1}{2}x + \sqrt{2}} \quad ; \quad t_2: y = -0,5x + 1,414$$

Aufgabe i.4 c

Skizze:

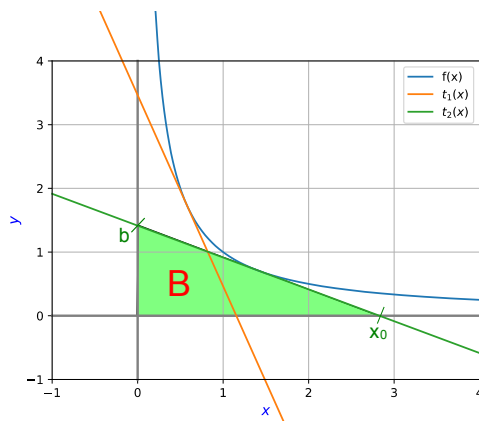


$$t_1: y = -3x + 2\sqrt{3} \rightarrow \underline{b = 2\sqrt{3}}$$

$$0 = -3x_0 + 2\sqrt{3} \rightarrow 3x_0 = 2\sqrt{3} \rightarrow \underline{x_0 = \frac{2}{3}\sqrt{3}} ; x_0 \approx 1,155$$

$$A = \frac{1}{2}x_0 \cdot b \rightarrow A = \frac{1}{2} \cdot \frac{2}{3} \cdot \sqrt{3} \cdot 2\sqrt{3} \rightarrow \underline{A = 2}$$

Skizze:



$$t_2: y = -\frac{1}{2}x + \sqrt{2} \rightarrow \underline{b = \sqrt{2}}$$

$$0 = -\frac{1}{2}x_0 + \sqrt{2} \rightarrow \frac{1}{2}x_0 = \sqrt{2} \rightarrow \underline{x_0 = 2\sqrt{2}} ; x_0 \approx 2,828$$

$$B = \frac{1}{2}x_0 \cdot b \rightarrow A = \frac{1}{2} \cdot 2\sqrt{2} \cdot \sqrt{2} \rightarrow \underline{B = 2}$$

$$\underline{\frac{A}{B} = \frac{2}{2}} \rightarrow \underline{A = B}$$

Arbeitsblatt Nr.

Datum:

Name:

Klasse:

Fach:

Aufgabe i.4 d:

$$t1 \cap t2: -3x + 2\sqrt{3} = -\frac{1}{2}x + \sqrt{2}$$

$$\hookrightarrow -\frac{5}{2}x = \sqrt{2} - 2\sqrt{3} \quad \rightarrow \quad \underline{x = -\frac{2}{5} \cdot (\sqrt{2} - 2\sqrt{3})} \quad ; \quad x \approx 0,820$$

$$t1: y = -3 \cdot \left(-\frac{2}{5} \cdot (\sqrt{2} - 2\sqrt{3}) \right) + 2\sqrt{3}$$

$$\hookrightarrow y = \frac{6}{5} \cdot \sqrt{2} - \frac{12}{5} \sqrt{3} + 2\sqrt{3} \quad \rightarrow \quad \underline{y = \frac{6}{5} \sqrt{2} - \frac{2}{5} \sqrt{3}} \quad ; \quad y \approx 1,004$$

S(0,820 | 1,004)