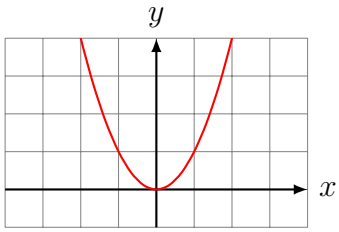
Differenzialrechnung (Kapitel 1) **Lösungen+** **Mündliche Aufgaben**

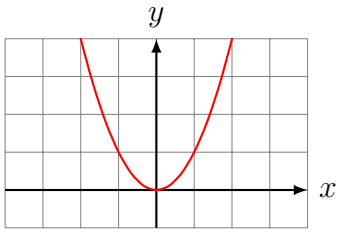
Aufgabe 1

$\lim\limits_{x\to\infty} x^2 = \infty$



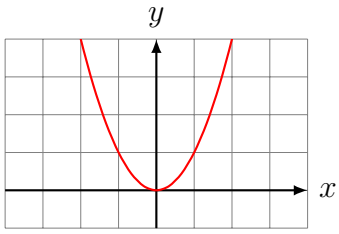
Aufgabe 2

$\lim\limits_{x\to-\infty} x^2 = \infty$



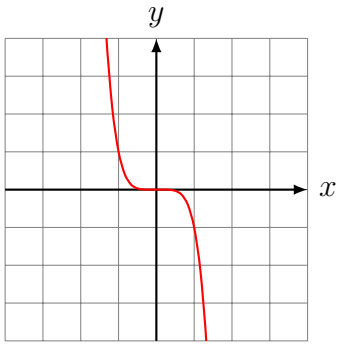
Aufgabe 3

$\lim\limits_{x\to 0} x^2 = 0$



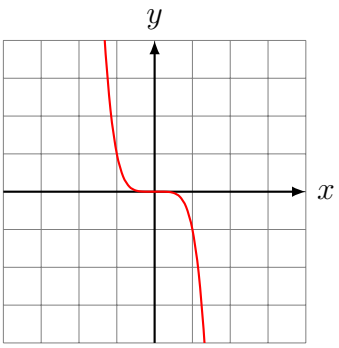
Aufgabe 4

$\lim\limits_{x\to\infty} (-x^5) = -\infty$



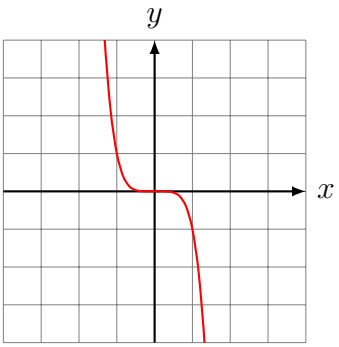
Aufgabe 5

$\lim\limits_{x\to-\infty} (-x^5) = \infty$



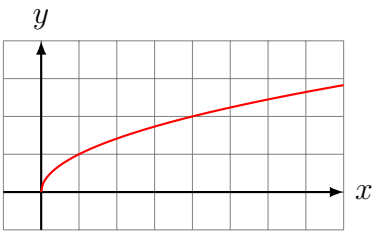
Aufgabe 6

$\lim\limits_{x\to 0} (-x^5) = 0$



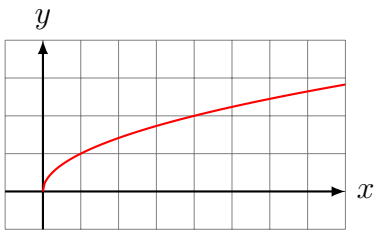
Aufgabe 7

$\lim\limits_{x\to\infty} \sqrt{x} = \infty$



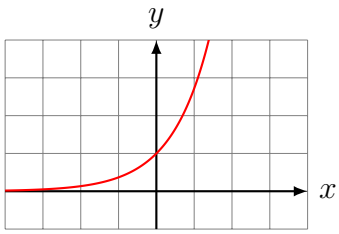
Aufgabe 8

$\lim\limits_{x \to 0^+} \sqrt{x} = 0$



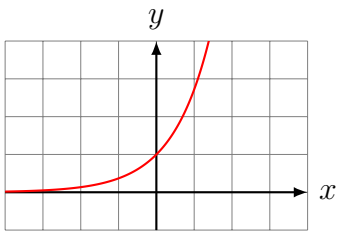
Aufgabe 9

$\lim\limits_{x \to \infty} \mathrm{e}^x = \infty$



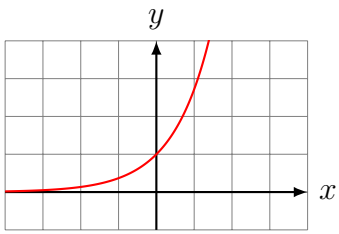
Aufgabe 10

$\lim\limits_{x \to -\infty} \mathrm{e}^x = 0$



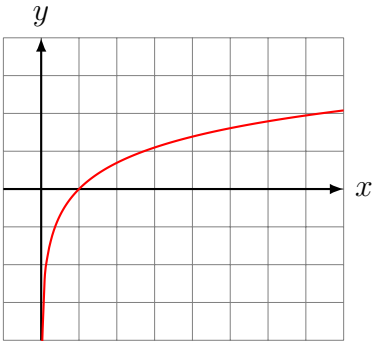
Aufgabe 11

$\lim\limits_{x \to 0} \mathrm{e}^x = 1$



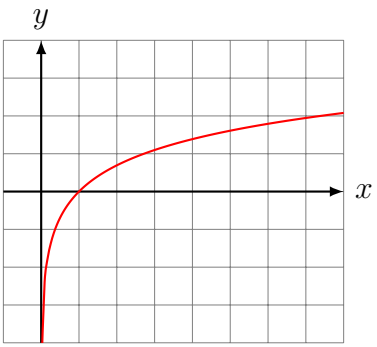
Aufgabe 12

$\lim\limits_{x \to \infty} \ln(x) = \infty$



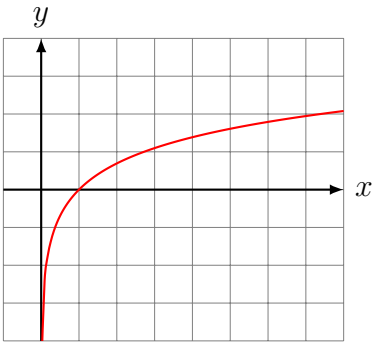
Aufgabe 13

$\lim\limits_{x \to 0^+} \ln(x) = -\infty$



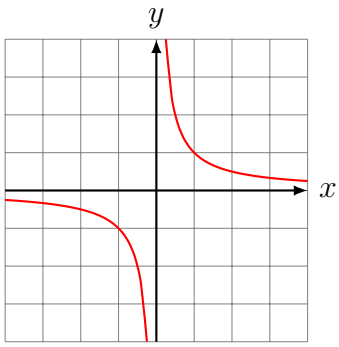
Aufgabe 14

$\lim\limits_{x \to 1} \ln(x) = 0$



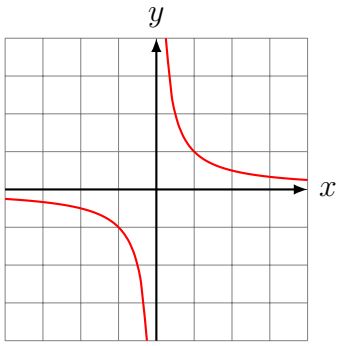
Aufgabe 15

$$\lim_{x\to\infty} \frac{1}{x} = 0$$



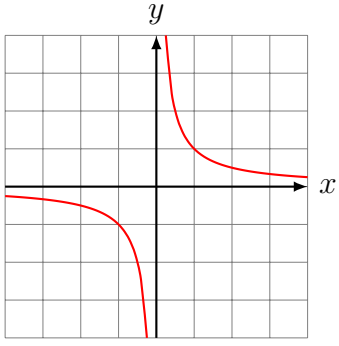
Aufgabe 16

$$\lim_{x\to-\infty} \frac{1}{x} = 0$$



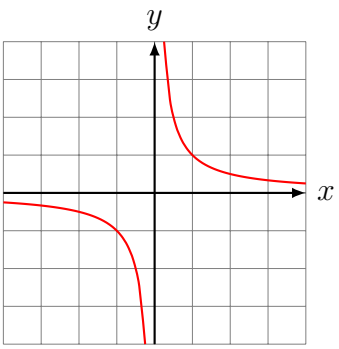
Aufgabe 17

$$\lim_{x\to0^+} \frac{1}{x} = \infty$$



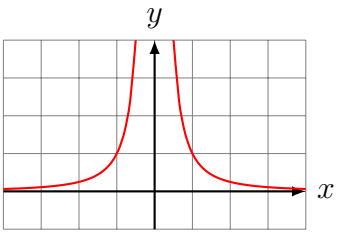
Aufgabe 18

$$\lim_{x\to0^-} \frac{1}{x} = -\infty$$



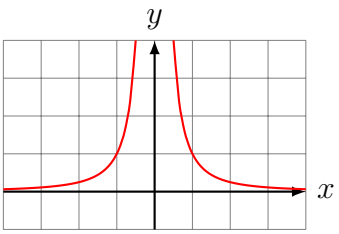
Aufgabe 19

$$\lim_{x\to\infty} \frac{1}{x^2} = 0$$



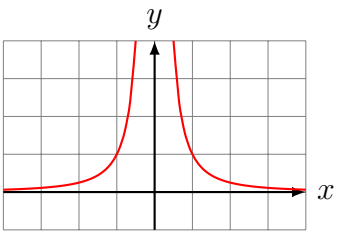
Aufgabe 20

$$\lim_{x\to-\infty} \frac{1}{x^2} = 0$$



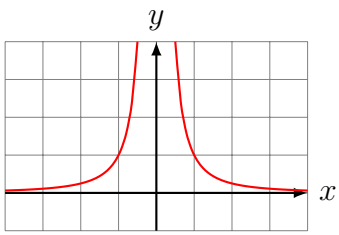
Aufgabe 21

$$\lim_{x\to0^+} \frac{1}{x^2} = \infty$$



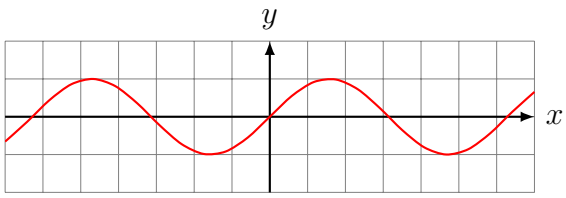
Aufgabe 22

$\lim\limits_{x \to 0^-} \dfrac{1}{x^2} = \infty$



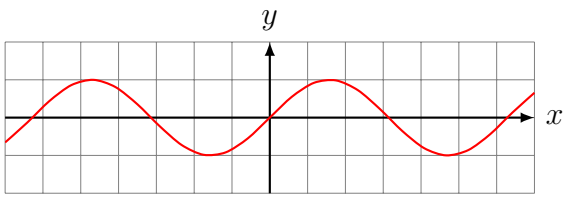
Aufgabe 23

$\lim\limits_{x \to \infty} \sin(x)$ existiert nicht



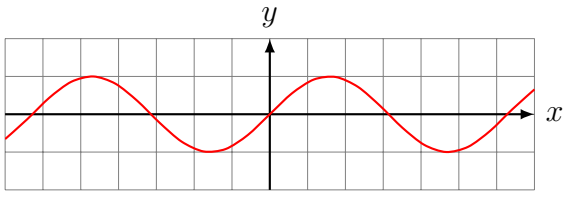
Aufgabe 24

$\lim\limits_{x \to -\infty} \sin(x)$ existiert nicht



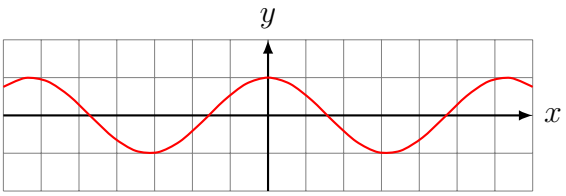
Aufgabe 25

$\lim\limits_{x \to 0} \sin(x) = 0$



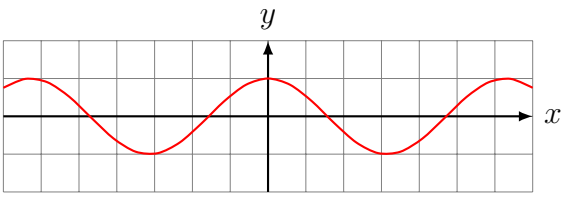
Aufgabe 26

$\lim\limits_{x \to \infty} \cos(x)$ existiert nicht



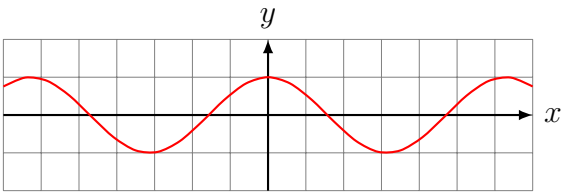
Aufgabe 27

$\lim\limits_{x \to -\infty} \cos(x)$ existiert nicht



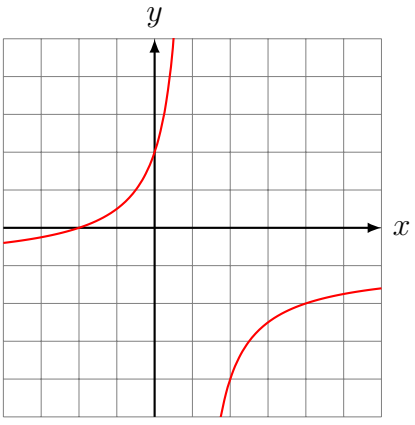
Aufgabe 28

$\lim\limits_{x \to 0} \cos(x) = 1$



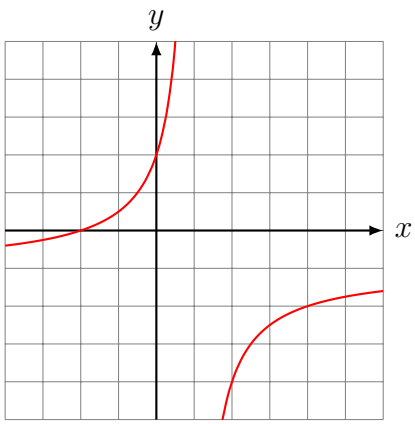
Aufgabe 29

$\lim\limits_{x \to \infty} \dfrac{2+x}{1-x} = -1$



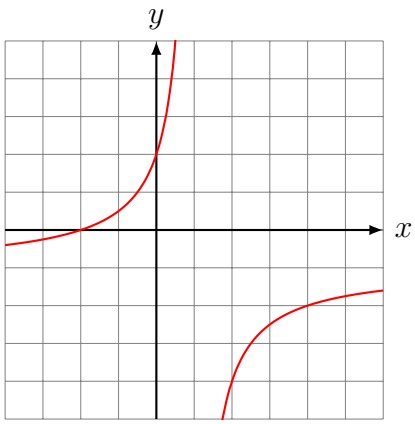
Aufgabe 30

$$\lim_{x \to -\infty} \frac{2+x}{1-x} = -1$$



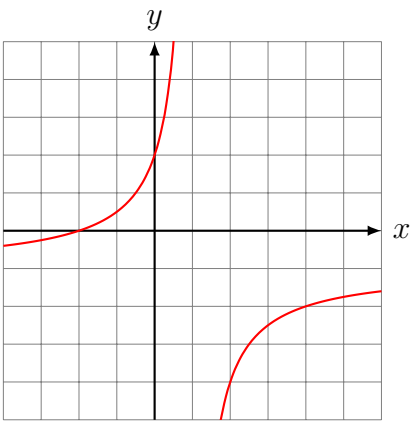
Aufgabe 31

$$\lim_{x \to 1^+} \frac{2+x}{1-x} = -\infty$$



Aufgabe 32

$$\lim_{x \to 1^-} \frac{2+x}{1-x} = \infty$$



Aufgabe 33

$$\lim_{x \to -2} \frac{2+x}{1-x} = 0$$