

Klasse	Art	Schwierigkeit	Thema	S. 29
11	Üben	XX	Differenzenquotient	2

a) $f(x) = x^2 - 2$; $D = \mathbb{R}$

$$m_1 = \frac{f(0) - f(-1)}{0 - (-1)} = \frac{-2 + 1}{1} = -1 ; \quad m_2 = \frac{f(1) - f(0)}{1 - 0} = \frac{-1 + 2}{1} = 1$$

$$m_3 = \frac{f(3) - f(1)}{3 - 1} = \frac{7 + 1}{2} = 4 ; \quad m_4 = \frac{f(3) - f(0)}{3 - 0} = \frac{7 + 2}{3} = 3$$

b) $f(x) = (x - 4)^2$; $D = \mathbb{R}$

$$\begin{array}{cccc} m_1 & m_2 & m_3 & m_4 \\ -9 & -7 & -4 & -5 \end{array}$$

c) $f(x) = \frac{1}{2}\sqrt{x+2}$; $D = [-2; \infty]$

$$\begin{array}{cccc} m_1 & m_2 & m_3 & m_4 \\ 0,20710678 & 0,15891862 & 0,12600429 & 0,13697574 \end{array}$$

d) $f(x) = \frac{12}{x+2}$; $D = \mathbb{R} \setminus \{-2\}$

$$\begin{array}{cccc} m_1 & m_2 & m_3 & m_4 \\ -6 & -2 & -0,8 & -1,2 \end{array}$$

e) $f(x) = -3 + 5x$; $D = \mathbb{R}$

$$\begin{array}{cccc} m_1 & m_2 & m_3 & m_4 \\ 5 & 5 & 5 & 5 \end{array}$$

f) $f(x) = 2^x$; $D = \mathbb{R}$

$$\begin{array}{cccc} m_1 & m_2 & m_3 & m_4 \\ 0,5 & 1 & 3 & 2,33333333 \end{array}$$