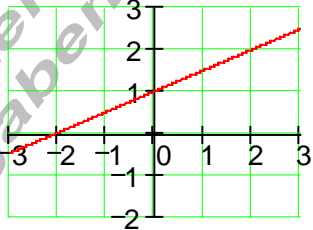


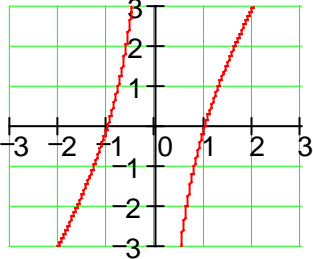
Lösungen Funktionen V

Ergebnisse:

E1	Ergebnisse	
	a) $f(x) = 2 - 3x \Rightarrow D = \mathbb{R}$	b) $f(x) = \sqrt{2x - 3} \Rightarrow D = \left\{ x \mid x > \frac{3}{2} \right\}_{\mathbb{R}}$
	c) $f(x) = \frac{2x+1}{x-1} \Rightarrow D = \mathbb{R} \setminus \{1\}$	d) $f(x) = -x^2 + 1 \Rightarrow D = \mathbb{R}$

E2	Ergebnisse	
	a) $f(x) = \frac{3}{2}x - 4 \Rightarrow W = \mathbb{R}$	b) $f(x) = 1 + \sqrt{x+1} \Rightarrow W = \{y \mid y \geq 1\}_{\mathbb{R}}$
	c) $f(x) = \sqrt{4-x^2} \Rightarrow W = \{y \mid 0 \leq y \leq 2\}_{\mathbb{R}}$	d) $f(x) = x^2 - 5 \Rightarrow W = \{y \mid 0 \geq -5\}_{\mathbb{R}}$

E3	Ergebnis										
a)	$f(x) = \frac{1}{2}x + 1 \Rightarrow D = \mathbb{R}$ <table border="1" style="display: inline-table; margin: 10px;"> <tr> <td>x</td> <td>k</td> <td>$-\frac{2}{k}$</td> <td>k+1</td> <td>k-4</td> </tr> <tr> <td>f(x)</td> <td>$\frac{1}{2}k+1$</td> <td>$-\frac{1}{k}+1$</td> <td>$\frac{1}{2}k+1,5$</td> <td>$\frac{1}{2}k-1$</td> </tr> </table> 	x	k	$-\frac{2}{k}$	k+1	k-4	f(x)	$\frac{1}{2}k+1$	$-\frac{1}{k}+1$	$\frac{1}{2}k+1,5$	$\frac{1}{2}k-1$
x	k	$-\frac{2}{k}$	k+1	k-4							
f(x)	$\frac{1}{2}k+1$	$-\frac{1}{k}+1$	$\frac{1}{2}k+1,5$	$\frac{1}{2}k-1$							

E3	Ergebnis										
b)	$f(x) = 2x - \frac{2}{x} \Rightarrow D = \mathbb{R} \setminus \{0\}$ <table border="1" style="display: inline-table; margin: 10px;"> <tr> <td>x</td> <td>k</td> <td>$-\frac{2}{k}$</td> <td>k+1</td> <td>k-4</td> </tr> <tr> <td>f(x)</td> <td>$2k - \frac{2}{k}$</td> <td>$-\frac{4}{k} + k$</td> <td>$2k + 2 - \frac{2}{k+1}$</td> <td>$2k - 8 - \frac{2}{k-4}$</td> </tr> </table> 	x	k	$-\frac{2}{k}$	k+1	k-4	f(x)	$2k - \frac{2}{k}$	$-\frac{4}{k} + k$	$2k + 2 - \frac{2}{k+1}$	$2k - 8 - \frac{2}{k-4}$
x	k	$-\frac{2}{k}$	k+1	k-4							
f(x)	$2k - \frac{2}{k}$	$-\frac{4}{k} + k$	$2k + 2 - \frac{2}{k+1}$	$2k - 8 - \frac{2}{k-4}$							

E3 Ergebnis

c) $f(x) = x - x^2 \Rightarrow D = \mathbb{R}$

x	k	$-\frac{2}{k}$	k+1	k-4
f(x)	$k - k^2$	$-\frac{2}{k} - \frac{4}{k^2}$	$-k^2 - k$	$-k^2 + 9k - 20$

f(x)

E3 Ergebnis

d) $f(x) = \frac{1}{x+3} \Rightarrow D = \mathbb{R} \setminus \{-3\}$

x	k	$-\frac{2}{k}$	k+1	k-4
f(x)	$\frac{1}{k+3}$	$\frac{k}{3k-2}$	$\frac{1}{k+4}$	$\frac{1}{k-1}$

f(x)

E3 Ergebnis

e) $f(x) = \sqrt{4-2x} \Rightarrow D = \{x \mid x \leq 2\}_{\mathbb{R}}$

x	k	$-\frac{2}{k}$	k+1	k-4
f(x)	$\sqrt{4-2k}$	$\sqrt{4-\frac{4}{k}}$	$\sqrt{2-2k}$	$\sqrt{12-2k}$

f(x)

E3 Ergebnis

f) $f(x) = 2^x - 1 \Rightarrow D = \mathbb{R}$

x	k	$-\frac{2}{k}$	k+1	k-4
f(x)	$2^k - 1$	$2^{\frac{2}{k}} - 1$	$2^{k+1} - 1$	$2^{k-4} - 1$

f(x)

E4	Ergebnisse	
	a)	$f(x) = 3^x ; D = \mathbb{R} ; W = \mathbb{R}_+^*$
	b)	$f(x) = 81$ für $x = 4$
	c)	$f(x) \geq 9$ für $x \geq 2$
	d)	$f(x+1) = 3^{x+1} = 3 \cdot 3^x = 3 \cdot f(x)$

E5	Ergebnisse	
	a)	$W = \{y \mid y \geq -3\}_{\mathbb{R}}$
	b)	$W = \{y \mid y \leq -2\}_{\mathbb{R}}$

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