

Lösungen zum Übungsblatt „Funktionen“

1.

x	1	2	3	4	5	6	7	8	9	10
(a) $f(x)$	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
(b) $f(x)$	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$	$\frac{1}{10}$
(c) $f(x)$	1	4	9	16	25	36	49	64	81	100
(d) $f(x)$	1	2	3	4	5	6	7	8	9	10

2. Die Zuordnung ist in jedem Fall eindeutig; $f: \mathbb{N} \rightarrow \mathbb{Q}$.

(a) $x \mapsto f(x) = \frac{x}{2}$ (b) $x \mapsto f(x) = \frac{1}{x}$ (c) $x \mapsto f(x) = x^2$

(d) $x \mapsto f(x) = x$

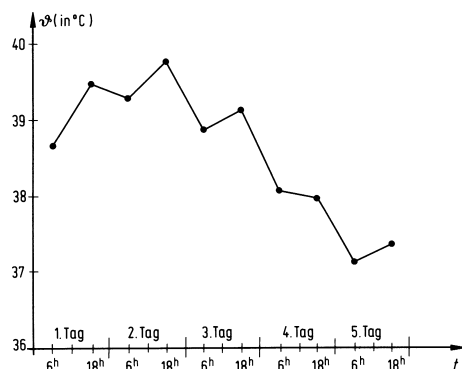
3.

n	15	16	17	18	19	20	21	22	23	24	25
$f(n)$	3	2	17	2	19	2	3	2	23	2	5

4.

x	-4	-3	-2	-1	0	1	2	3	4
(a) $f(x)$	-5	-3	-1	1	3	5	7	9	11
(b) $f(x)$	$-\frac{5}{17}$	$-\frac{2}{5}$	$-\frac{3}{5}$	-1	-1	0	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{3}{17}$
(c) $f(x)$	$-\frac{4}{5}$	$-\frac{3}{4}$	$-\frac{2}{3}$	$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{2}{3}$	$\frac{3}{4}$	$-\frac{4}{5}$
(d) $f(x)$	-32	16	-8	4	-2	4	-8	16	-32

5.



6. (a) - (b) $\checkmark$ (c) - (d) $\checkmark$ (e) - (f) - (g) $\checkmark$ (h) $\checkmark$

7. (a) in 1 Min. $\frac{1}{12} m^3 = 83\frac{1}{3} l$ Wasser, in 1 Tag $120 m^3$, in 1 Woche $840 m^3$

(b) in $4\frac{4}{5}$ Min. = 4 Min. 48 Sek.

(c) in 40.5 h

8. (a) $y = f(x) = 2.5x$ (b) $y = f(x) = 1.5x$

(c) $y = f(x) = \frac{1}{3}x$ und $y = f(x) = -\frac{1}{3}x$

9. (a) $s = 80 \frac{km}{h} \cdot t$

(b) $b = 0.082 \frac{1}{km} \cdot s$

(c) $b = 0.082 \frac{1}{km} \cdot 80 \frac{km}{h} \cdot t = 6.56 \frac{1}{h} \cdot t$