

Chapter 1 Chapter Review Extra Practice Answers

1. a) Domain = $\{0, 1, 2, 3, 4\}$, Range = $\{0, 2\}$
Function; each x value maps to only one y value
- b) Domain = $\{x \in \mathbf{R} \mid -9 \leq x \leq 1\}$,
Range = $\{f(x) \in \mathbf{R} \mid -10 \leq f(x) \leq 0\}$
Not a function; fails the vertical-line test
- c) Domain = $\{x \in \mathbf{R}\}$,
Range = $\{f(x) \in \mathbf{R} \mid f(x) \geq -3\}$
Function; passes the vertical-line test
- d) Domain = $\{x \in \mathbf{R}\}$, Range = $\{f(x) \in \mathbf{R}\}$
Function; when graphed, passes the vertical-line test

2. a) $f(-5) = -19$
b) $f(0) = 6$
c) $g\left(\frac{3}{4}\right) = 0$
d) $g(3a) = 12a - 3$
e) $f(-b - 4) = -5b - 14$
f) $f(3) - f(-3) = 30$

3. a) Domain = $\{x \in \mathbf{R} \mid x \geq 5\}$,
Range = $\{f(x) \in \mathbf{R} \mid f(x) \geq 0\}$
- b) Domain = $\{x \in \mathbf{R}\}$,
Range = $\{f(x) \in \mathbf{R} \mid f(x) \leq -4\}$

4. a) $f^{-1}(x) = \frac{-(x-5)}{7}$
b) $f^{-1}(x) = \frac{-(x-1)}{9}$

5. a) $x = 0$
b) $f^{-1}(x) = 4 - 5x$

6. a) $f(x) = -2(x-3)^2 + 3$
b) $f(x) = |x+1| - 3$

7. a) $f(x) = (-3(x+1))^2 + 5$
b) $f(x) = -2|x-2| - 1$
c) $f(x) = \frac{1}{3(x+3)} + 2$
d) $f(x) = -3\sqrt{x+4} - 3$