

Chapter 1 Review Extra Practice

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1. State the domain and range of the relation and determine whether the relation is a function.

a)

x	0	1	1	2	3
y	0	-4	-5	-8	-9

b)

x	-2	-1	0	1	2
y	2	1	0	1	2

c)

x	2	4	6	8	10
y	-3	-6	0	-6	-3

d)

x	5	15	25	35	45
y	10	10	10	10	10

e)

x	12	12	12	12	12
y	-10	-5	0	-5	-10

f)

x	-0.2	-0.1	0	0.1	0.2
y	3	2	1	2	3

2. State the domain and range of each function.

a) $y = |x - 1|$

b) $y = -2|x + 3| - 4$

c) $y = \left| \frac{x - 3}{6} \right|$

d) $y = -\frac{1}{4}|3x| + 7$

e) $y = 8 + \left| \frac{1}{2}x - 1 \right|$

f) $y = -\frac{1}{2} + |x| - 3$

3. Determine the parent functions that match each of the following characteristics.

a) As $x \rightarrow \infty, y \rightarrow 0$

b) Symmetric about y -axis

c) $D = \{x \in \mathbf{R}\}$

$R = \{y \in \mathbf{R} | y \geq 0\}$

d) As $x \rightarrow 0, y \rightarrow 1$

e) passes through $(0, 0)$

f) $D = \{x \in \mathbf{R} | x \geq 0\}$

$R = \{y \in \mathbf{R} | y \geq 0\}$

4. Determine the transformations of $f(x) = x^2 + 3$ described by the following.

a) $f(2(x - 4)) + 2$

b) $-3f(-(x + 1))$

c) $f(5(x - 3)) + 5$

d) $-f(x) - 12$

e) $-4f(6(x)) - 11$

f) $-f(-(x + 2)) - 1$

5. Determine the inverse of each function.

a) $y = 2x - 7$

b) $y = \frac{3}{x + 4}$

c) $y = \sqrt{x^2 + 3}$

d) $y = x^3 + 1$

e) $y = \frac{1}{5}x^2 - 3$

6. Determine each value for the given function.

$$f(x) = \begin{cases} 3^x, & \text{if } x < 0 \\ 5, & \text{if } x = 0 \\ -2x^2 + 5, & \text{if } x > 0 \end{cases}$$

a) $f(-2)$

b) $f(0)$

c) $f(-5)$

d) $f(1)$

e) $f(5)$

f) $f(-3)$

7. Given $f = \{(0, -4), (1, 2), (3, 0), (5, 5)\}$,

$g = \{(-1, 4), (0, \frac{1}{2}), (3, 12), (4, -1)\}$, and

$h = \{(-1, \frac{1}{4}), (0, 3), (4, -1), (5, 6)\}$, determine

the following.

a) $f(x) + g(x)$

b) $g(x) + h(x)$

c) $f(x) - h(x)$

d) $[f(x)][h(x)]$

e) $[h(x)][g(x)]$

f) $[f(x) + h(x)][f(x)]$