8th Grade CHAPTER 5 Practice 2

Determine whether each relation is a function. (2pts each)

1)

x	y
1	4
2	7
3	10
4	13

DOMAIN   RANGE

1 → 4
2 → 7
3 → 10
4 → 13

1) **Yes**

Model each rule with a table of values and then graph. (4pts each)

2) $y = 3x + 1$

| x	Rule: $3x + 1$	y
-1	$3(-1) + 1$	-2
0	$3(0) + 1$	1
1	$3(1) + 1$	4
2	$3(2) + 1$	7
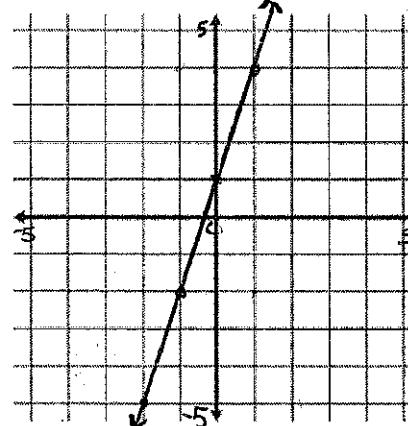
2) see left

Model each rule with a table of values and then graph. (4pts each)

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

x	Rule: $y = -\frac{1}{2}x + 2$	y
-1	$-\frac{1}{2}(-1) + 2$	$2\frac{1}{2}$
0	$-\frac{1}{2}(0) + 2$	2
1	$-\frac{1}{2}(1) + 2$	$1\frac{1}{2}$
2	$-\frac{1}{2}(2) + 2$	1
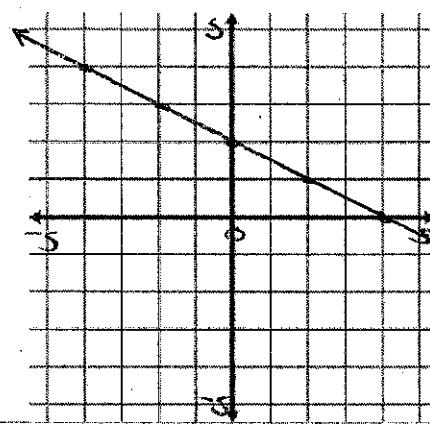
3) see left

4) $f(x) = -x - 3$

x	Rule: $-x - 3$	y
-1	$-1 \cdot (-1) - 3$	-2
0	$-1 \cdot (0) - 3$	-3
1	$-1 \cdot (1) - 3$	-4
2	$-1 \cdot (2) - 3$	-5
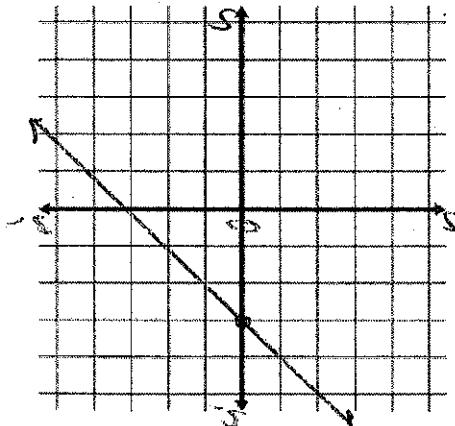
4) see left

Write a function rule for each table. (2pts each)

5)

x	y
-2	-13
-1	-6
0	1
1	8
2	15

+1 ... +7 (annotations)

$$y = mx + b$$

Slope $\frac{7}{1}$ $x=0, y=?$ 1

$$y = 7x + 1$$

6)

x	y
-2	20
-1	15
0	10
1	5
2	0

$$y = -5x + 10$$

6)

Write a function rule. (2pts)

7) The cost of renting a car depends on the number of days rented. Enterprises charges $29.75 per day. Write a function rule to represent the cost of renting a car.

$$y = 29.75x$$

Is each equation a direct variation? If yes, find the constant of variation. (1pt)

8) $y = -8x + 9$

NO

9) $3y + x = 5$

$$-x \quad -x$$

$$\frac{3y}{3} = \frac{-x + 5}{3} \qquad y = -\frac{1}{3}x + 1\frac{2}{3}$$

NO

10) $y = \frac{1}{2}x$

Yes, $\frac{1}{2}$

Write the equation of direct variation that includes the given point. (2pts each)

11) (5, 1)

$y = kx$ when $k = \frac{y}{x}$

$k = \frac{y}{x} = \frac{1}{5}$

$$y = \frac{1}{5}x$$

12) (-8, 2)

$-\frac{2}{8} = -\frac{1}{4}$

$$y = -\frac{1}{4}x$$

Write the equation of direct variation that includes the given point. (2pts each)

13) (-2, -5)

$\frac{-5}{-2} = 2.5$

$$y = 2.5x$$

Write an equation for each inverse variation. (1pt each)

14) y = 6 when x = 1.5

$y = \frac{k}{x}$ when $k = xy$

$\begin{array}{r} 1.5 \\ \times\ 6 \\ \hline 9.0 \end{array}$

$$y = \frac{9}{x}$$

15) y = 6.1 when x = 7

$\begin{array}{r} 6.1 \\ \times\ 7 \\ \hline 42.7 \end{array}$

$$y = \frac{42.7}{x}$$

16) $y = \frac{1}{8}$ when x = 4

$\frac{1}{8} \times \frac{4}{1} = \frac{1}{2}$

$$y = \frac{0.5}{x}$$

Each pair of points is on the graph of an inverse variation. Find the missing value. (2pts each)

17) (4, 12) and (6, y)

$4 \cdot 12 = 48$

$y = \dfrac{48}{x}$

$y = \dfrac{48}{x}$

$y = \dfrac{48}{6}$

$\boxed{y = 8}$

18) Do the data in each table represent a direct variation or an inverse variation? (2pts each)

x	y
1	10
2	20
3	30
4	40

DIRECT

$k = \dfrac{y}{x}$

$\dfrac{10}{1} = 10$

$\dfrac{20}{2} = 10$

$\dfrac{30}{3} = 10$ ✓

INVERSE

$k = x \cdot y$

(DIRECT)

19)

x	y
1	48
2	24
4	12

$\dfrac{48}{1} = 48$

$\dfrac{24}{2} = 12$ ✗

$48 \times 1 = 48$

$2 \times 24 = 48$

$4 \cdot 12 = 48$ ✓

(INVERSE)

20)

x	y
1	3
4	0.75
9	0.333333

$\dfrac{3}{1} = 3$

$\dfrac{0.75}{4} = 0.1875$

$\dfrac{0.333}{9} = 0.037$

$3 \times 1 = 3$

$4 \times 0.75 = 3$

$9 \times \dfrac{1}{3} = 3$

(INVERSE)

✗