1. Use this function: $k(w) = 6 - 10w$

a) Find w if $k(w) = 51$

$51 = 6 - 10w$

$45 = -10w$

$w = -4.5$

b) Find the Range for this Domain: $\{-2, 0, 1, 2\}$

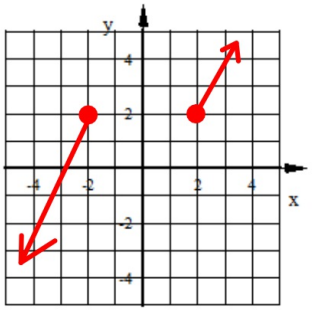
$k(-2) = 6 - 10(-2) = 26$

$k(0) = 6 - 10(0) = 6$

$k(1) = 6 - 10(1) = -4$

$k(2) = 6 - 10(2) = -14$

2. State the Domain and Range of this graph:



D: $x \leq -2, x \geq 2$

R: $\mathbb{R}$

3. Write a function rule for each table of values.

a)

X	Y
−5	21.5
−2	8.6
4	−17.2
6	−25.8
9	−38.7

$y = mx$

$m = \frac{y}{x} = -4.3$

$y = -4.3x$

b)

$y = mx - 7$

X	Y
−16	−75
−12	−58
0	−7
4	10
20	78

$10 = 4m - 7$

$17 = 4m$

$m = 4.25$

$y = 4.25x - 7$

Section 5-5: Direct Variation

Direct Variation is a special Linear Function.

- It has a constant ratio $\frac{Y}{X} = k$

  k = the Variation Constant

- Direct Variation Equation:

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

Graph of direct variation

- The graph must be a line that passes through the origin.

$\frac{y}{x}$ is a CONSTANT RATIO

4. Does each table represent Direct Variation?

If yes, state the variation constant and write a Direct Variation Equation.

a)

X	Y
−9	−28.35
−6	−18.9
−4	−12.6
5	15.75
14	44.1

3.15 ↓

Direct Variation? yes

If Yes, k = 3.15

If yes, EQ: $y = 3.15x$

b)

X	Y
13	31
15	28
17	25
19	22
21	19

Direct Variation? NO.

If Yes, k =

If yes, EQ:

Alg 1 Thur 12-28-18

Hwk #33 Answers:

12. $y = -\frac{10}{8}x$ or $-\frac{5}{4}x$

13. $y = \frac{-9}{-5}x$ or $\frac{9}{5}x$

23. EQ: $E = 7.10h$

$E = Earnings(\$)$ $h = \#hrs$

24. Yes. EQ: $y = 1.8x$

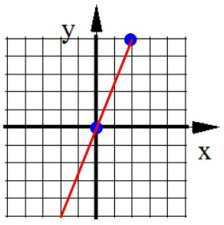
25. No

26. Yes. EQ: $y = -1.5x$

37. a.

b.

41. EQ: $y = \frac{5}{2}x = 2.5x$



45. a. $k = \frac{5}{160} = 0.03125 \frac{qt}{lb}$

b. $b = 0.03125w$

b = amount of blood (qts) w = weight (lbs)

c.

12. $(-8, 10)$ **13.** $(-5, -9)$

23. For the data in each table, tell whether y varies directly w
equation for the direct variation.

24.

x	y
12	21.6

25.

x	y
8	11

37. a. Writing How can you tell whether two sets
b. How can you tell if a line is the graph of a d

**Graph the direct variation that includes the giv
Write an equation of the line.**

41. $(2, 5)$ **42.** $(-2, 5)$ **43.** $(2, -5)$

45. Biology The amount of blood in a perso
weight. A person who weighs 160 lb has
a. Find the constant of variation.
b. Write an equation relating quarts of b
c. Open-Ended Estimate the number of

1.) Direct Variation Equations:

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

This Equation has a constant which means it CAN'T be written as y = kx

Is each equation direct variation?
If yes, find the variation constant.

a.) -4 + 7x + 4 = 3y

yes $k = \frac{7}{3}$

$7x = 3y$

$y = \frac{7}{3}x$

b.) -10 + 2x + 1 = 3 + 4x - 2y

$-9 + 2x = 3 + 4x - 2y$

$-9 - 2x = 3 - 2y$

$-12 - 2x = -2y$

$y = 6 + 1x$ NO.

Direct Variation Equations:

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

2.) Does each equation represent Direct Variation?

1. $y - 3 = x$

NO. $y = x + 3$

2. $4y = -12x$

yes $y = -3x$

3. $4x - 2y = 10$

NO. $-4x \quad -4x$

$-2y = -4x + 10$

4. $6x + 12y = 0$

yes.

3.) Given the table shows a direct variation relationship, find the value of ?.

To solve Direct Variation situations you can use either ① equation or you can use a ② Proportion

X	Y
-20	55
-12	33
?	-38.5
32	-88

① $y = kx$

$k = 55/-20$

$= -2.75$

$y = -2.75x$

$-38.5 = -2.75x$

$x = 14$

② $\frac{55}{-20} = \frac{-38.5}{x}$

$55x = 770$

$x = 14$

The data below comes from a Direct Variation relationship.

X	Y
–5	–31.5
–2.4	–15.12
4.5	28.35
7	44.1
11	69.3

1. Write a Direct Variation Equation.

$k = 6.3$ $y = 6.3x$

2. Find x when y = 30

$30 = 6.3x$

$x = 4.76$

3. Find y when x = 20

$y = 6.3(20)$

$y = 126$

The given point is part of a Direct Variation relationship.

Write the equation for each Direct Variation relationship.

4. $(9,5)$ $y = .56x$

$y = \frac{5}{9}x$

5. $(-4,1)$ $y = -.25x$

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

The ordered pairs are for the same Direct Variation relationship.

Write a direct variation equation then find the missing value.

6. $(2,5)\&(x,16)$

$\frac{5}{2} = \frac{16}{x}$ $x = 6.4$

$5x = 32$

7. $(10,y)\&(-3,75)$

$\frac{y}{10} = \frac{75}{-3}$

$-3y = 750$

$y = -250$

Remember the phrase: "Y varies directly with X"

The number of tires a company can make varies directly with the number of employees at work that day. One a recent day the company had 32 workers present and they produced 776 tires.

y

x

1. Find the Variation Constant, include units.

$k = \frac{776}{32} = 24.25$ tires/employee

2. Write a Direct Variation Equation.

$y = 24.25x$

3. Find the number of Employees that would be needed to make 1200 tires.

$1200 = 24.25x$

$x = 50$ employees.

The amount of money raised varies directly with the number of people who contribute. $1746 was raised when 24 people contributed.

1. Find the variation constant, including units.

$k = \frac{1746}{24} = 72.75$ \$/person $\quad y = 72.75x$

2. Find the number of people it would take to raise $10,000.

$10{,}000 = 72.75x$

$x = 138$ ppl.

The amount of spaghetti required for a meal varies directly with the number of people that are served.

y x

# of people served	lbs of Spaghetti
12	9
28	21
48	36
68	51

1. Find the variation constant including units.

$k = 0.75$ lb/person

$y = .75x$

2. Find amount of spaghetti needed to feed 100 people.

$y = 75$ ppl.

The point (4, -7) is on the graph of a direct variation relationship.

$(-4, 7)$

Write an equation for this Direct Variation.

$y = \frac{7}{-4}x$

Hwk #34 - Practice 5.5 Worksheet (due tomorrow)

IXL #13 - Q.2 & Q.10 due tomorrow at 4pm!