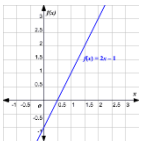
Name _____ Date: _____ Pd: _____

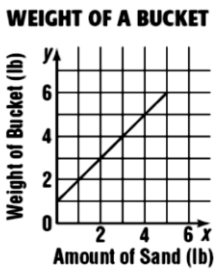


Algebra U7L3 - Direct Variation

Warm Up…

A.3C – real world linear funtions:

The graph below shows the weight of a bucket as it is filled with sand.

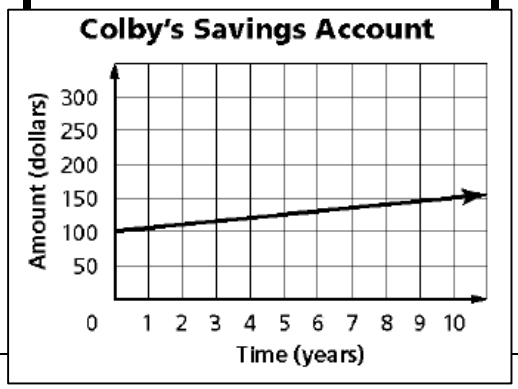


What is the weight of the empty bucket?

F. 0 pounds **H.** 2 pounds
G. 1 pound **I.** 6 pounds

A.2C – write equation from table or graph:

Write an equation for the situation represented in the graph at the bottom of this box

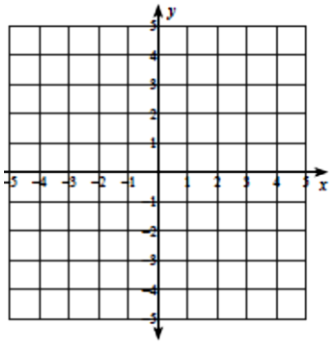


Recent Review:

Graph the system of inequalities and shade the solution set (the section that overlaps)

$$y \le -\frac{5}{2}x - 2$$

$$y < -\frac{1}{2}x + 2$$



Today's Goal:

- KWBAT write and solve equations involving direct variation
- WHY? This is Algebra standard A.2D. Many situations in life can be represented by direct variation. We will work to write equations today that can help us solve problem situations and then we will use our equations to find solutions.

What do we NEED to know?

_____ _____ is another phrase that means _____

If we think about how much you get paid vs. how many hours you work, these phrases mean the same thing:

(y) (x)

- Your pay _____ _____ with the number of hours you work

Remember!

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

- Your pay is _____ _____ to the number of hours you work
  (y) (x)

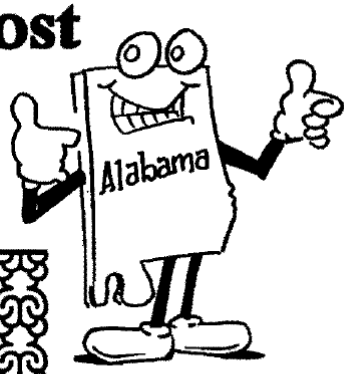
Let's EXPLORE this Direct Variation with some EXAMPLES…

1. If y is directly proportional with x and $y = 36$ when $x = 30$, what is the value of y when $x = 40$?

2. The amount of money Debbie earns varies directly with the number of hours she works. If she earns $600 when she works 40 hours, how much will she earn for working 85 hours?

You Try!

What Does Alabama Have That Most Students Would Like To Have?



For each exercise, write an equation expressing direct variation. Find your equation in the answer column. Then use your equation to solve the problem. Write the letter of the equation in the box above your solution.

1. y varies directly as x, and $y = 10$ when $x = 2.5$. Find y if $x = 18$.

2. y varies directly with x, and $y = 120$ lb when $x = 50$ lb. Find y if $x = 40$ lb.

3. y varies directly as x, and $y = 9$ cm when $x = 15$ cm. Find y if $x = 80$ cm.

4. y is directly proportional to x, and $y = 45$ when $x = \$600$. Find y if $x = \$1000$.

5. The amount of money earned on a job is directly proportional to the number of hours worked. If \$76 is earned for 8 h of work, how much is earned for 34 h of work?

6. The height that a ball bounces varies directly with the height from which it is dropped. A certain ball bounces 22 cm when dropped from a height of 50 cm. How high will the ball bounce if dropped from a height of 90 cm?

7. The amount of water wasted from a leaking faucet is directly proportional to the time that the faucet leaks. If 96 oz of water are wasted in 30 min, how much water is wasted in 5 min?

8. The number of pages that Klunk can read varies directly with the time he spends reading. If he reads 13 pages in 25 min, how many pages can he read in 2 h?

9. The weight of an object on another planet varies directly with its weight on Earth. A person who weighs 150 lb on Earth would weigh 399 lb on Jupiter. How much would a 180-lb person weigh on Jupiter? Round to the nearest pound.

10. The weight of water in a person's body varies directly as his/her body weight. The body of 170-lb person contains about 119 lb of water. How much water is in the body of a person who weighs 120 lb?

11. The number of ceramic tiles needed to cover a wall is directly proportional to the area of the wall. If 180 tiles are needed for 100 square feet of wall area, how many tiles are needed for a wall that measures 9 ft by 30 ft?

B	F	R	D	O	A	S	N	A	U	L	A	R	T	S			
$y = 2.66x$	$y = 0.44x$	$y = 0.72x$	$y = 0.6x$	$y = 1.8x$	$y = 4x$	$y = 8.4x$	$y = 3.2x$	$y = 0.7x$	$y = 2.4x$	$y = 0.064x$	$y = 9.5x$	$y = 0.52x$	$y = 3.8x$	$y = 0.075x$			

70	39.6 cm	486	96 lb	62.4	17.5 oz	84 lb	$75	$315	72	16 oz	48 cm	474 lb	$323	88 lb	479 lb	43.8 cm	