

## RP.1 & 2 STUDY GUIDE

### RP.1 Unit Rate:

1. An experimental vehicle was able to travel  $\frac{3}{8}$  mile on  $\frac{1}{16}$  gallon of water. At this rate, what was the mileage in **miles per gallon** of water for this vehicle?
  2. Ellie can make  $\frac{1}{8}$  quart of orange juice in  $\frac{3}{4}$  of a minute by squeezing oranges. At this rate, how much juice can she make in **1 minute**?
  3. Aidan ran  $3\frac{1}{2}$  miles in  $\frac{1}{2}$  hour. At this rate, how many hours will it take Aiden to run **1 mile**?
  4. Drew proofread  $\frac{1}{4}$  of a page of a technical report in  $\frac{2}{5}$  of an hour. What is the **unit rate at which he proofread the pages**?
  5. Bargains R Us store offers a 12-roll package of Wipey Wonder toilet paper for \$2.59. The 6-roll package is on sale for @1.25. Which is the **better buy**?
  6. Wal-Mart sells a case of 24 cans of Diet Coke for \$6.88. Kroger sells a 12-pack of Diet Coke for 3.99. Which is the **best buy**?
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### RP. 2 Proportionality/Direct Variation

1. Which table shows a **direct variation** between x and y?

a.

x	40	20	10	5
y	0.05	0.1	0.2	0.4

b.

x	40	20	10	5
y	0.02	0.4	0.8	1.6

c.

x	40	20	10	5
y	0.125	0.25	0.5	1

d.

x	40	20	10	5
y	2	1	0.5	0.25

2. Which table shows a **direct variation** between x and y?

a.

x	y
5	10
10	15
15	20
20	25

b.

x	y
5	20
10	25
15	30
20	35

c.

x	y
5	15
10	20
15	25
20	30

d.

x	y
5	25
10	50
15	75
20	100

3. Which table shows the relationship between  $x$  and  $y$  as a **direct variation**?

a. 

$x$	2	4	8	10
$y$	5	9	17	21

b. 

$x$	1	3	5	6
$y$	4	12	20	24

c. 

$x$	2	3	4	5
$y$	4	9	16	25

d. 

$x$	2	3	6	12
$y$	6	4	2	1

4. Which of the following situations represents a **proportional relationship**?

a. Dana will travel 150 miles.  
 $x$  = the speed at which Dana is traveling  
 $y$  = the number of hours she will be traveling

b. Jamal earns a fixed pay of \$300 every week.  
 $x$  = the number of hours he works during the week  
 $y$  = the pay he earns per hour

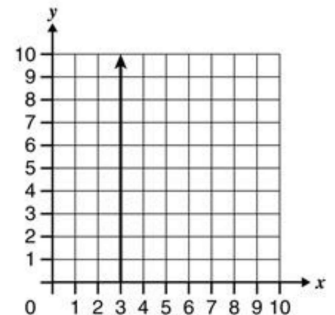
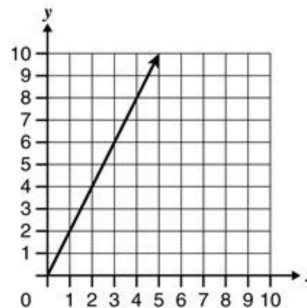
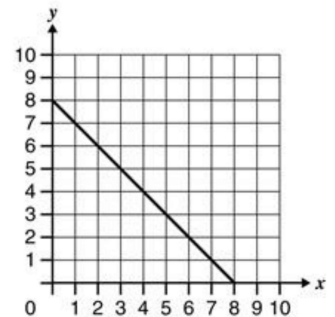
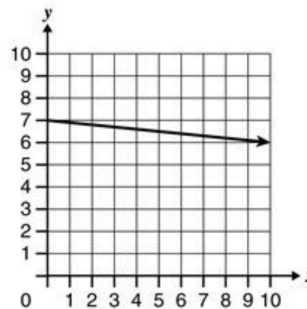
c. Max earns \$10 for each car he washes.  
 $x$  = the number of cars he washes  
 $y$  = the total amount of money he earns

d. The area of a rectangle is exactly 24 square inches.  
 $x$  = the length of the rectangle  
 $y$  = the width of the rectangle

5. Which of the following describes a graph that represents a **direct variation**?

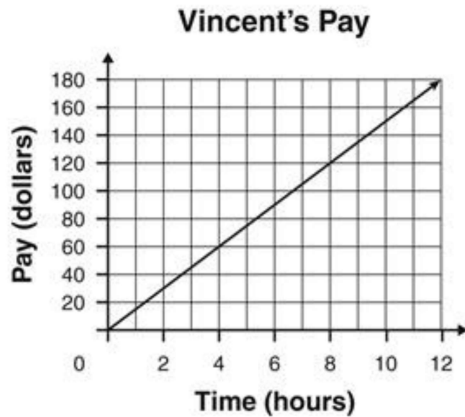
- a. Never crosses the  $y$ -axis.
- b. Always a horizontal line.
- c. Always a straight line.
- d. Never intersects the origin.

6. Which graph represents a **direct variation** between  $x$  and  $y$ ?



7. Describe the characteristics of a graph that shows a **direct variation** (proportionality) between  $x$  and  $y$ .

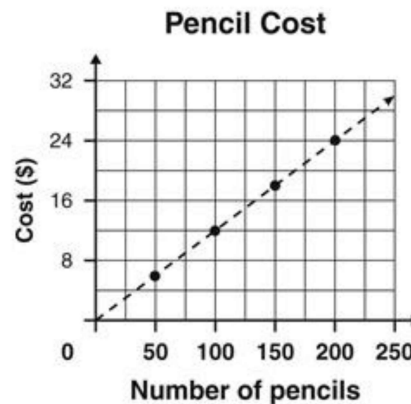
8. The graph below describes Vincent's pay.



What is his hourly rate of pay?

- a. \$15                      b. \$20                      c. \$60                      d. \$180

9. Miranda wants to buy pencils printed with the school mascot. The graph below represents the cost for different number of pencils.

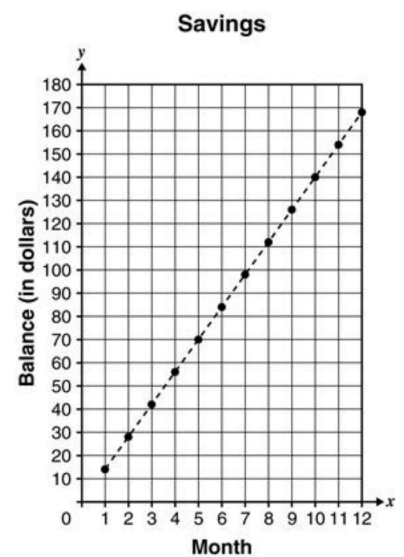


What is the cost per pencil?

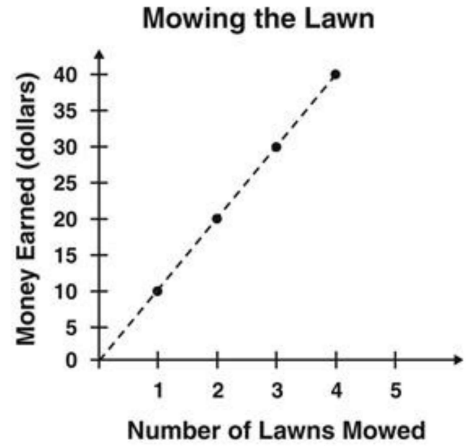
- a. \$0.10   b. \$0.12   c. \$1.20   d. \$8.30

10. Which amount is closest to Fred's rate of savings over those 12 months?

- a. \$7.14 per month  
 b. \$13.75 per month  
 c. \$ 14.00 per month  
 d. \$15.00 per month



11. The graph shows how much money Richie makes mowing lawns.



a. What does (3,30) on the graph mean?

\_\_\_\_\_

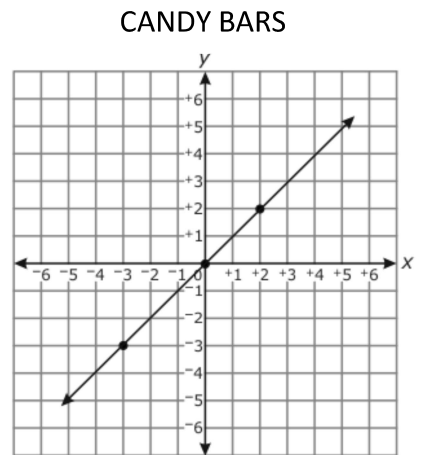
b. What is the constant of proportionality?

\_\_\_\_\_

c. What is the equation for this graph?

\_\_\_\_\_

12. What is the constant of proportionality for the graph?



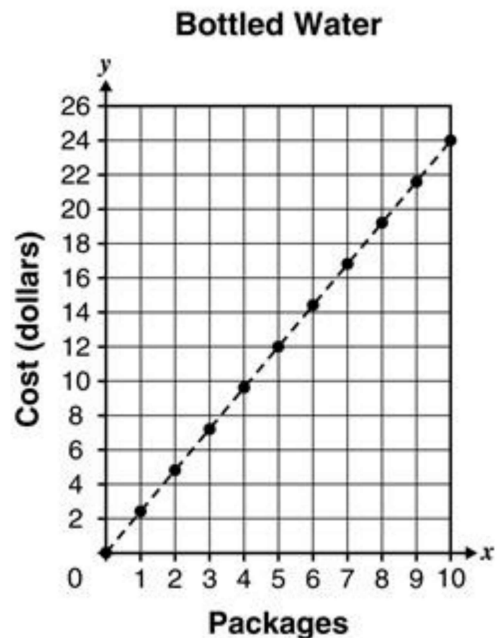
Pick a point off of the graph and describe it.

(x,y) = (\_\_\_\_, \_\_\_\_)

\_\_\_\_\_

\_\_\_\_\_

13. Bottles of water are sold in packages of 6. The graph shows the cost per bottle.



a. What is the constant of proportionality for this graph?

\_\_\_\_\_

b. Pick a point off of the graph and describe it.

(x,y) = (\_\_\_\_, \_\_\_\_)

\_\_\_\_\_

\_\_\_\_\_

c. How much would 36 bottles cost? \_\_\_\_\_

14. Four customers at a gas station this morning purchased the same type of gasoline. The table below shows the amounts of gasoline they purchased and the cost.

GASOLINE EXPENSES				
Number of Gallons of Gasoline ( $n$ )	7.5	13	10.5	6.25
Total Cost ( $C$ )	\$30	\$52	\$42	\$25

Using the data in the table, what is the constant of proportionality,  $k$ , that can be used to find the total cost,  $C$ , for  $n$  gallons of gasoline?

$k =$  \_\_\_\_\_

15. The variables  $x$  and  $y$  vary directly. When  $x = 12$ ,  $y = 4$ . Which of the following equations represents this relationship?

- a.  $y = \frac{48}{x}$       b.  $y = 3x$       c.  $y = \frac{1}{3}x$       d.  $y = x - 8$

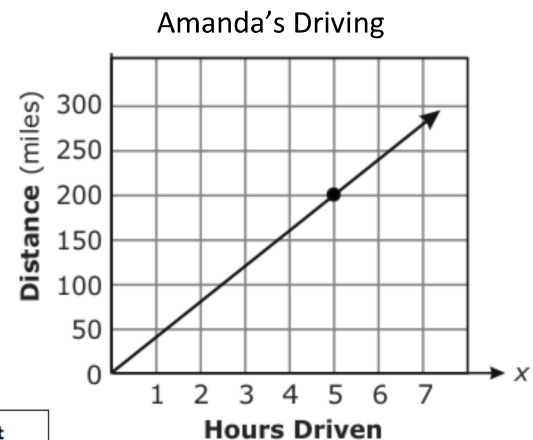
16. A school club is ordering t-shirts for its members. The table shows the cost of different number of t-shirts.

Number of T-shirts ( $x$ )	Cost ( $y$ )
6	\$72
11	\$132
15	\$180

Which equation will calculate the cost of  $x$  t-shirts?

- a.  $y = 5x$       b.  $y = 10x$       c.  $y = \frac{1}{12}x$       d.  $y = 12x$

17. The graph shows the distance Amanda has driven after different number of hours.



Which equation will calculate the distance,  $y$ , Amanda has driven after  $x$  hours?

- a.  $y = \frac{1}{40}x$       b.  $y = 40x$       c.  $y = \frac{1}{50}x$       d.  $y = 50x$

18. The table shows the cost to go to different numbers of rides at a local carnival.

Number of Rides ( $r$ )	Cost ( $c$ )
2	\$3.00
5	\$7.50
8	\$12.00

Which equation calculates the cost to go on  $x$  number of rides?

- a.  $c = 1.5r$       b.  $r = 1.5c$       c.  $c = 3r$