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***?

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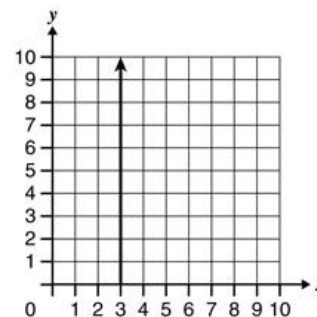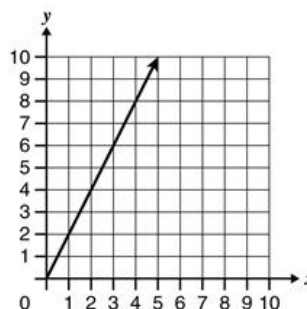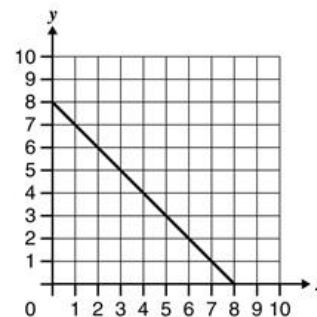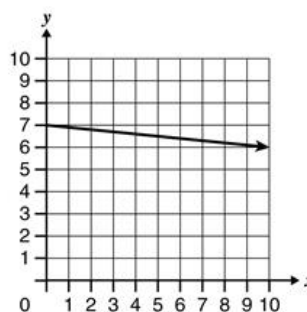
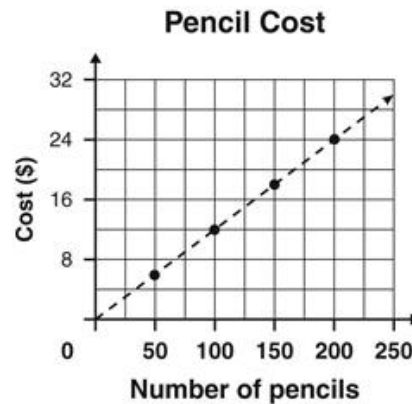7. Describe the characteristics of a graph that shows a *direct variation* (proportionality) between x and y.

8. The graph below describes Vincent's pay.

Vincent's Pay
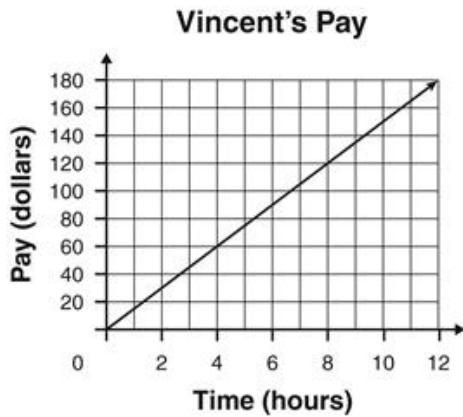
What is his hourly rate of pay?

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.
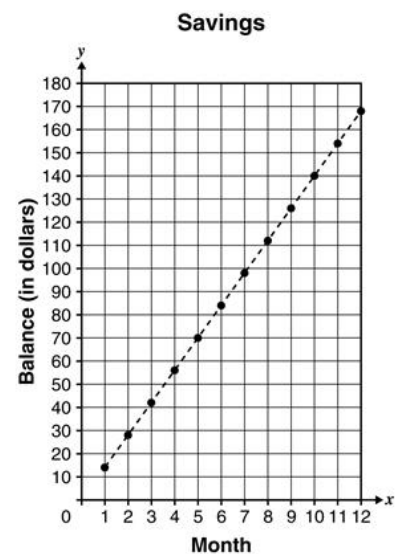
Pencil Cost

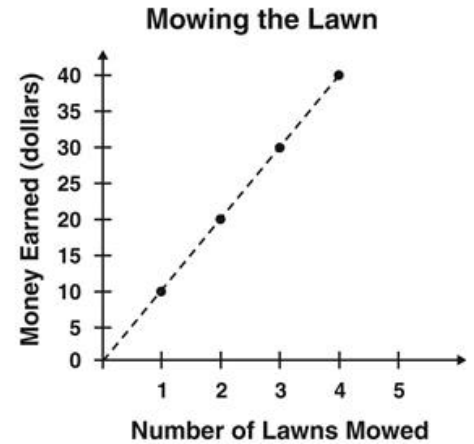What is the cost per pencil?

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?

Savings

a. $7.14 per month

b. $13.75 per month

c. $ 14.00 per month

d. $15.00 per month

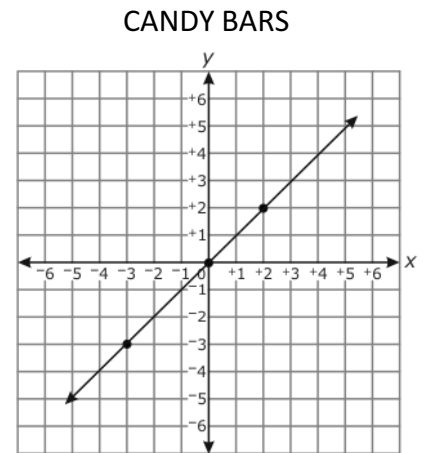11. The graph shows how much money Richie makes mowing lawns.

Mowing the Lawn

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

_____

b. What is the constant of proportionality?
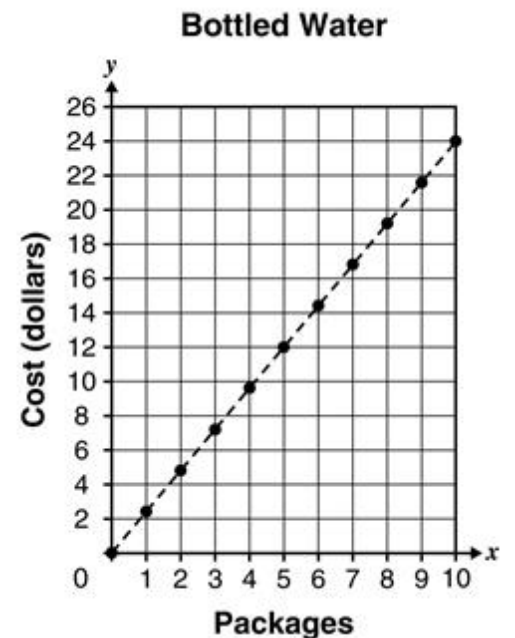
_____

c. What is the equation for this graph?

_____

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

CANDY BARS

_____

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.

Bottled Water

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. $y = \dfrac{48}{x}$
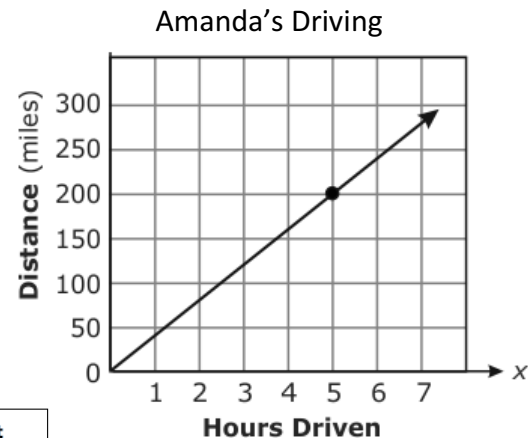
b. y = 3x

c. $y = \dfrac{1}{3}X$

d. y = x – 8

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

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

a. y = 5x

b. y = 10x

c. $y = \dfrac{1}{12}x$

d. y = 12x

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

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. $y = \dfrac{1}{40}x$

b. y = 40x

c. $y = \dfrac{1}{50}x$

d. y = 50x

Amanda's Driving

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

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

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

a. c = 1.5r

b. r = 1.5c

c. c = 3r