Name **Answer Key**

Date _____ Pd **2,5,8**

LINEAR RELATIONSHIPS UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

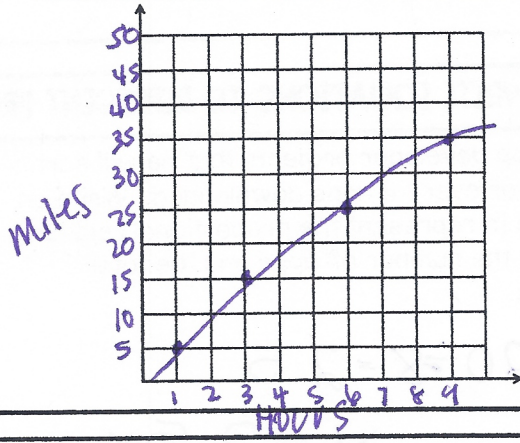## I CAN DETERMINE IF A RELATIONSHIP IS PROPORTIONAL. 7.4C

1. Use the table below to determine if the relationship is proportional.

CUPS OF MILK	CUPS OF FLOUR
1.5	6
4	16
5.5	22
7.5	30
10	40

yes, proportional

2. Graph the table below. Then, determine if the relationship is proportional.

Hours	1	3	6	9	12
Miles	5	15	25	35	45

No, not a straight line

I CAN FIND THE CONSTANT OF PROPORTIONALITY. 7.4C

Determine the constant of proportionality in each of the problems below.
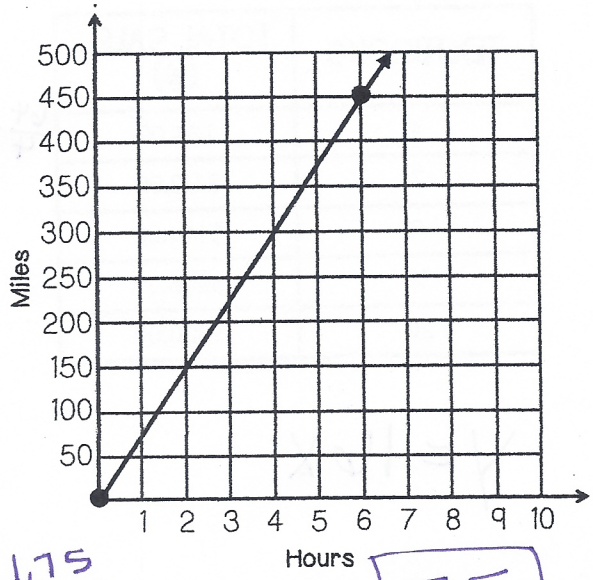
3.
$$y = 1\frac{1}{2}x$$

$1\frac{1}{2}$

4.

MONTHS	2	4	6	8	10
TOTAL REVENUE	190	380	570	760	950

$\frac{190}{2} = 95$ $\frac{380}{4} = 95$

95

5. A restaurant has an all you can eat buffet. They charge $13.95 per person.

$13.95

6.

Summer Road Trip

1, 75
2, 150
3, 225
4, 300

75

I CAN USE TABLES TO REPRESENT PROPORTIONAL RELATIONSHIPS. 7.4A

7. Complete the table below. Use the information below to answer questions 8-10.

HOURS	TOTAL RAINFALL (IN)
0	0
1	3.5
2	7
3	10.5
4	14
5	17.5

$\frac{10.5}{3} = 3.5$

8. After how many hours will the amount of rainfall be 28 inches?

$35\overline{)28}$ $35\overline{)280}$ $\dfrac{8}{}$

$\begin{array}{r} 8 \\ 35\overline{)280} \\ -280 \\ \hline 0 \end{array}$

8 hrs

9. Write an equation to represent the rainfall.

$$y = 3.5x$$

10. If it continues at this rate, how many inches of rain will fall after 6 hours?

$$3.5(6) = y$$
$$21 = y$$

I CAN WRITE EQUATIONS TO REPRESENT PROPORTIONAL RELATIONSHIPS. 7.4A

11. An app developer projects that he will earn $20.00 for every 8 apps downloaded. Write an equation to represent the proportional relationship between the number of apps and the total earnings.

$$20 \div 8 = 2.5$$
$$y = 2.5x$$

12. It takes Esther 12 minutes to ride a roller coaster four times. Write an equation to represent the proportional relationship between the number of rides and the total amount of time.

12 min = 4 times
3 min = 1 time

$$y = 3x$$

13. Use the table below to write an equation to represent the constant of proportionality.

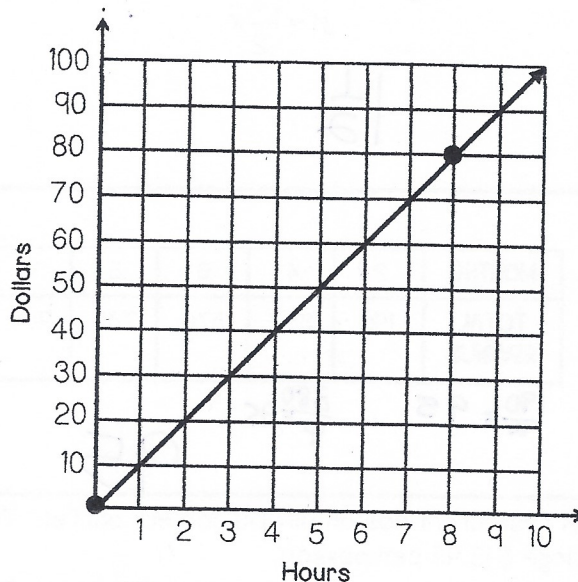| TEXTBOOKS	TOTAL SALES ($)
4	$64.00
7	$112.00
9	$144.00
13	$208.00
20	$320.00

$\frac{64}{4} = 16$

$$y = 16x$$

14.

Babysitting Wages

$$y = 10x$$

15. Write a situation to represent the following equation.

$$y = 5x$$

Bob walks 5 miles every day.

x = # of days
y = total miles walked
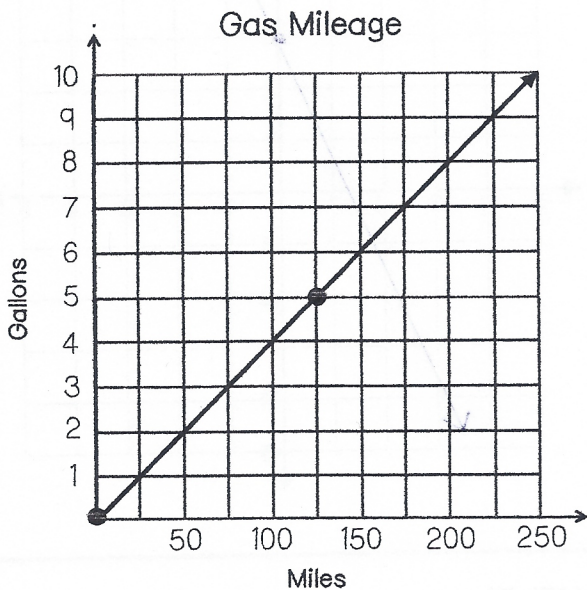
16. Write a situation to represent the following table.

PEOPLE	0	5	10	15	20
COST	0	100	200	300	400

Each person that comes to the game pays $20.

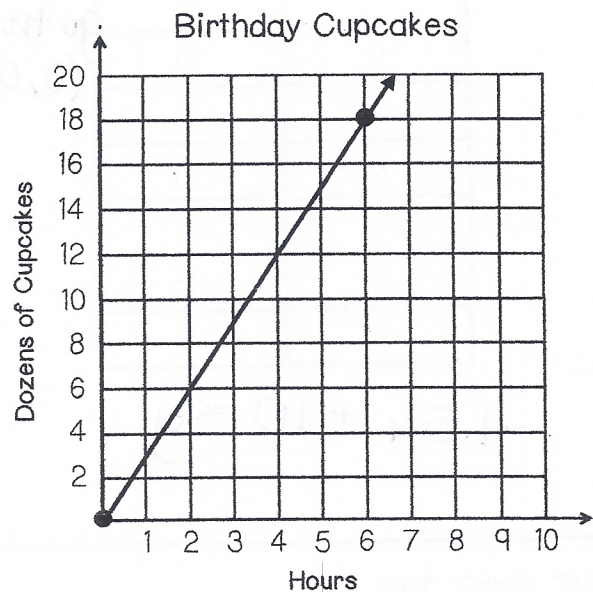Use the graph to answer the questions below.

Gas Mileage

17. In this situation what does the ordered pair (0, 0) represent?

0 miles uses 0 gallons of gas

18. How many gallons of gas are required for a 500 mile road trip?

20 gallons

Use the graph to answer the questions below.

Birthday Cupcakes

19. Which ordered pair above can be used to determine the unit rate?

(1, 3)

20. In this situation what does the ordered pair (5, 15) represent?

in 5 hours they will make 15 dozen cupcakes

21. At the baseball field a bag of candy is $2.50 and a bag of popcorn is $4.25. Roman is planning to purchase 3 boxes of candy and x bags of popcorn. Write an equation to find y, the total price Roman must pay.

$$2.50(3) + 4.25x = y$$
$$7.50 + 4.25x = y$$

22. Complete the table below to satisfy the equation $y = \frac{1}{2}x + 5$. ← *plug x values into equation to solve for y*

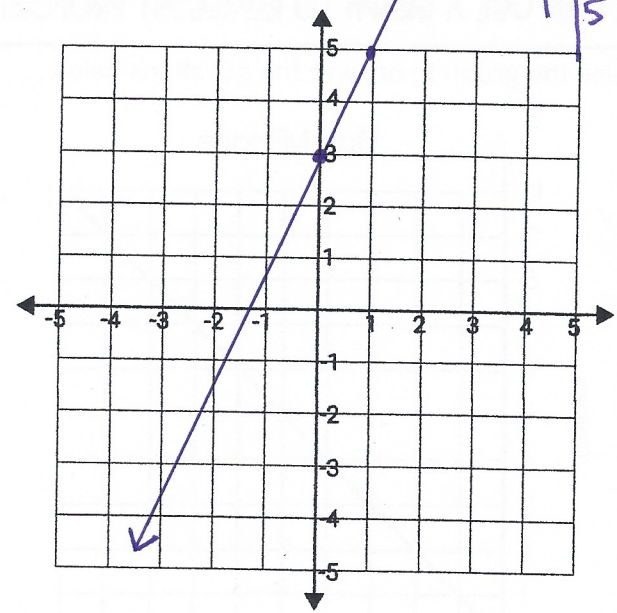| x	y
0	5
4	7
8	9
12	11
16	13
20	15

23. Write an equation to represent the relationship below. Determine if the relationship is proportional. **NOT Proportional b/c it doesnt go thru (0,0)**

x	y
0	10
2	7
4	4
6	1
8	-2
10	-5

$$-1.5x + 10 = y$$

24. Graph the equation $y = 2x + 3$

X	Y
0	3
1	5

I'VE GOT IT!
What concepts can I ace on the test?

HELP!
What concepts do I need to study?