Name:_____ Date:_____ Block:_____

UNIT 3: Rates, Ratios and Proportions STUDY GUIDE

Unit Rate

1) Four gallons of gasoline cost $16.80. What is the price per gallon?	2) Which is the best buy? 6 shirts for $25.50 4 shirts for $18.00 5 shirts for $21

Unit Rate with Complex Fractions

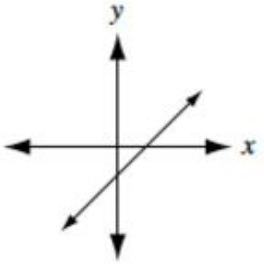
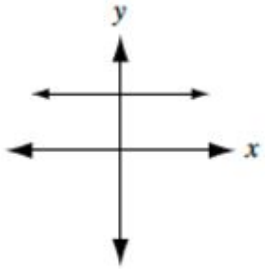
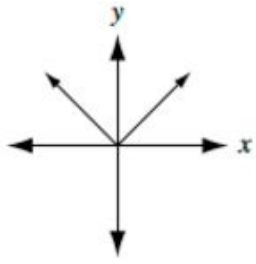
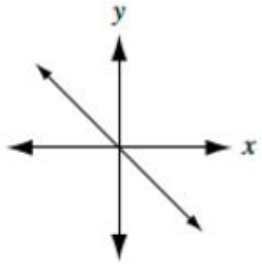
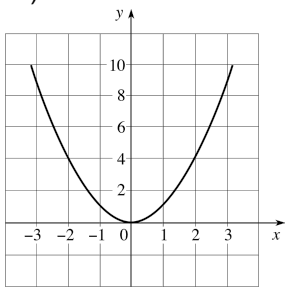
3) Emma drank 1/4 of a milk shake in 1/10 of an hour. How many minutes will it take her to drink a full milk shake?	6) Lillian eats 1/4 of a pound of grapes in 1/17 of a minute. How many minutes will it take her to eat a full pound of grapes?
4) A bucket of water was ⅛ full, but it still has 2 ¾ gallons of water in it. How much water would be in one fully filled bucket?	7) Lauren bikes 1 ⅓ miles in 1/10 hour. What is her rate of speed in miles per hour?
5) A recipe calls for using ¾ cup of brown sugar for each ⅔ cup of white sugar. How many cups of brown sugar are used per cup of white sugar?	8) Joey plans to jog 6 miles to the store. He can jog at a constant rate of ½ of a mile every ¼ of an hour. How many hours will it take him get to the store?

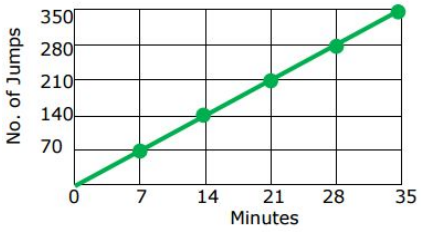
Proportional Relationships from a Graph

9) List the 3 things a graph must have to show a Proportional Relationship.

1)_____ 2)_____ 3)_____

Does the graph represent a Proportional Relationship? (Circle Proportional or Nonproportional)

10)  Proportional Non-proportional	11)  Proportional Non-proportional	12)  Proportional Non-proportional	13)  Proportional Non-proportional	14)  Proportional Non-proportional

15) The graph below represents the number of balls thrown over time. What is the constant of proportionality? 	16) The graph below represents the number of vertical jumps Ava can do over time. How many jumps can she do per minute? 

Proportional Relationship from a Table

Do the values represent a Proportional Relationship? (Circle Proportional or NonProportional)

Name:_____ Date:_____ Block:_____

17) $\frac{7}{14}$, $\frac{4}{8}$ Proportional Non-Proportional	18) (0,0) , (3,4) , (6,8) , (9,12) Proportional Non-Proportional	19) $\frac{3}{8}$, $\frac{6}{14}$ Proportional Non-Proportional
20) $\frac{3}{28}$, $\frac{6}{56}$ Proportional Non-Proportional	21) (0,0) , (1,2) , (2,4) , (4,16) Proportional Non-Proportional	22) (1,1) , (2,2) , (3,3) , (4,4) Proportional Non-Proportional

23) Find the ratio of y to x for Table 1 and Table 2, simplify the fraction to simplest form.

Table 1:

Number of Hours	Total Cost ($)	Ratio: $\frac{y}{x}$
1	$75	
2	$120	
3	$165	
4	$210	
5	$255	

Table 2:

Number of Hours	Total Cost ($)	Ratio: $\frac{y}{x}$
1	$45	
2	$90	
3	$135	
4	$180	
5	$225	

a) Which table shows a proportional relationship?

_____

b) What makes it a proportional relationship?

_____

24) Isabella made necklaces with beads. If the quantities are proportional, what is the constant of proportionality?

Number of Necklace	2	4	6	8	10
Number of Beads	7	14	21	28	35

25) Find the constant of proportionality from the table below.

X	1.5	2	3.5	5
Y	10.5	14	24.5	35

26) Write an equation that represents the relationship.

x	y
$^-2$	$^-7$
$^-4$	$^-14$
$^-6$	$^-21$
$^-8$	$^-28$

27) Write an equation to represent the data in the table.

x	y
2	$^-6.5$
5	$^-16.25$
9	$^-29.25$
11	$^-35.75$

28) At a candy store, all the candy is sold by weight. The table below shows the cost to purchase candy by weight.

Weight of Candy (pounds)	Cost ($)
2	5.12
4	10.24
6	15.36

Write an equation to calculate the cost of pounds of candy, x.

29) The table shows how the number of people who ride a roller coaster depends on the number of cars on the rollercoaster.

Number of Cars	Number of People
3	18
5	30
6	36
8	48

a) How many people can ride in 1 car?_____
b) In 10 cars?_____

Answer Key

1) $4.20

Name:_____ Date:_____ Block:_____

2) 5 shirts for $21 ($4.20)

3) 24

4) 16 ½

5) 1 ⅛

6) 4/17

7) 13 ⅓

8) 3 hours

9) 1) straight line (linear) 2) constant of proportionality 3) goes through origin

10) Nonproportional

11) nonproportional

12) nonproportional

13) proportional

14) nonproportional

15) 5

16) 10

17) proportional

18) proportional

19) nonproportional

20) proportional

21) nonproportional

22) proportional

23) a) table 2 b) constant rate of change

24) 3.5

25) 7

26) y=3.5x

27) y=-3.25x

28) y=2.56x

29) a) 6 b) 60