Do the following problems on a piece of binder paper. For problems with graphs complete the graph on this page and the rest of the problem on your binder paper. Label each problem with the problem name written in bold at the start of the problem.

Name _____ Date _____ Period _____

Math 7 Chapter 1 Review

TRAVEL During Tracy's trip across the country, she traveled 2,884 miles. Her trip took 7 days. Find a unit rate to represent the average miles she traveled per day during the trip.

SHE TRAVELED 12 MILES IN 2 DAYS

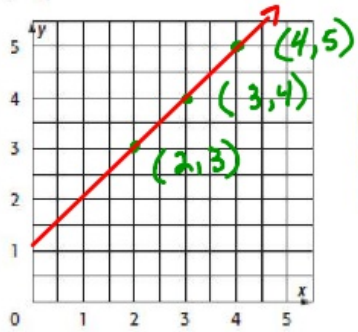
6 MILES PER DAY $\frac{12}{2}$ $\frac{\text{MILES}}{\text{DAYS}}$

CARPETING Hana paid $1,200 for the carpet in her living room. The room has an area of 251.2 square feet. What was her unit cost of carpeting in dollars per square foot? Round to the nearest cent.

$\frac{\text{COST}}{\text{ROOM SIZE}} = \text{COST PER SQUARE FOOT}$ $\quad \frac{1200}{251.2} = 4.777$

HANA PAID $4.78 PER SQUARE FOOT

BAKING Rachel baked 3 cakes in 2 hours, 4 cakes in 3 hours, and 5 cakes in 4 hours. Determine whether the number of cakes baked is proportional to the number of hours.



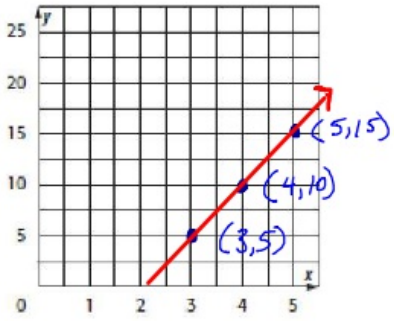
ALSO

$\frac{2}{3} \neq \frac{3}{4}$

$\frac{8}{12} \neq \frac{9}{12}$

NOT PROPORTIONAL, LINE DOES NOT GO THROUGH THE ORIGIN

PROFIT If Stephanie sells 3 necklaces, she earns a profit of $5. If she sells 4 necklaces, her profit is $10. Five necklaces sold gives her a profit of $15 and six necklaces sold gives her a profit of $20. Determine whether the amount of profit is proportional to the number of necklaces sold.



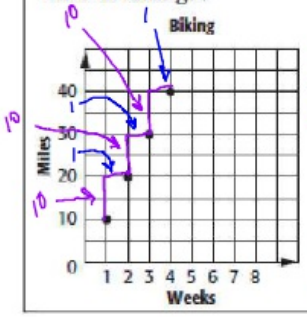
ALSO

$\frac{3}{5} \neq \frac{4}{10}$

THIS IS $\frac{2}{5}$

NOT PROPORTIONAL, LINE DOES NOT GO THROUGH THE ORIGIN

BIKING The graph represents how far Toby biked given the number of weeks he has been biking. Find the constant rate of change.



$\frac{\text{CHANGE IN Y}}{\text{CHANGE IN X}} = \frac{\Delta Y}{\Delta X} = \frac{10}{1}$

THE CONSTANT RATE OF CHANGE IS 10 MILES PER WEEK

GROWTH Jaz was 43 inches tall. Eighteen months later, she was 52 inches tall. Find the constant rate of change for Jaz's height.

JOEY IS 3 ft tall

2 YEARS LATER JOEY IS 5 ft tall

5 ft - 3 ft = 2 ft CHANGE IN 2 YRS

$\frac{1 \text{ ft}}{1 \text{ YR}}$

UNIT RATE

MDW 9/23

TRAVEL PROBLEM

TRACY

2884 MILES IN 7 DAYS

200 MILES IN 4 DAYS

$$\frac{200 \text{ MILES}}{4 \text{ DAYS}} = \frac{50 \text{ MILES}}{1 \text{ DAY}}$$

(50 MILES = X)

COEFFICIENT

$200(1) = 4x$

$\frac{200}{4} = \frac{4x}{4}$

50 MILES = X

10 MILES IN 2 DAYS

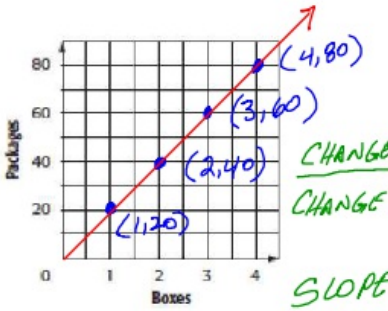
$\frac{10}{2} = 5$

$$\frac{2884 \text{ MILES}}{7 \text{ DAYS}} = 412 \text{ MILES PER DAY}$$

ΔY MEANS CHANGE IN Y

RAISINS The table shows the number of packages of raisins per box. Graph the data. Then find the slope of the line. Explain what the slope represents.

Packages	20	40	60	80
Boxes	1	2	3	4



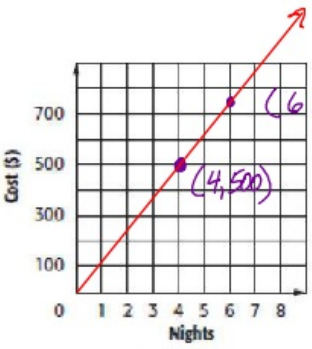
CHANGE IN Y / CHANGE IN X = 20/1

SLOPE = 20/1 OR 20

THE SLOPE REPRESENTS 20 PACKAGES PER BOX

RESORT The Snells can spend 4 nights at a resort for $500 or 6 nights at the same resort for $750. Graph the data. Then find the slope. Explain what the slope represents.

SLOPE = ΔY/ΔX = (750 − 500)/(6 − 4) = 250/2 = 125/1



THE SLOPE = 125/1 OR 125

THE SLOPE REPRESENTS THE COST PER NIGHT

WEDDING FAVORS Lucius is making favors for his sister's wedding. If supplies for 25 favors cost $62.50, how much do supplies for 60 favors cost?

UNIT RATE

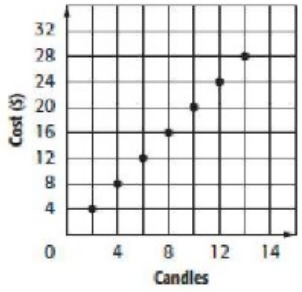
$6 FOR 3 WEDDING FAVORS

X FOR 1 WEDDING FAVOR $2

HOW MUCH FOR 10 WEDDING FAVORS $20

6/3

CANDLES The number of votive candles varies directly as the price. What is the ratio of candles to dollars?



(X) CANDLES	(Y) COST
2	4
4	8
6	12
8	16

6/12 = 1/2

4/8 = 1/2

CANDLES / DOLLARS 2/4 = 1/2

SHELVES A bookshelf holds 43 books on each shelf. Is the total number of books proportional to the number of shelves in the bookshelf?

SHELVES	BOOKS
1	43
2	86
X	43x

YES, THE NUMBER OF BOOKS IS PROPORTIONAL TO THE NUMBER OF SHELVES

FISH Of the 50 fish that Alan caught from the lake, 14 were trout. The estimated population of the lake is 7,500 fish. About how many trout would you expect to be in the lake?

SEE THE NEXT PAGE FOR THE EXPLANATION AND ANSWER TO THIS PROBLEM.

CARPETING Hana paid $1,200 for the carpet in her living room. The room has an area of 251.2 square feet. What was her unit cost of carpeting in dollars per square foot? Round to the nearest cent.

RECREATION An outdoor swimming pool costs $8 per day to visit during the summer. There is also a $25 yearly registration fee. Is the total cost proportional to the total number of days visited?

NO, THE COST IS NOT PROPORTIONAL THE NUMBER OF DAYS VISITED.

TOTAL COST	33	41	49
DAYS VISITED	1	2	3

33/1 ≠ 41/2

FISH

CAUGHT 50 FISH

14 WERE TROUT

TOTAL FISH = 7500

TOTAL TROUT = X

$\frac{\text{TROUT}}{\text{FISH}}$ $\frac{14}{50} = \frac{X}{7500} = 2100$

$\frac{14}{50} = 0.28$ $\frac{2,100}{7,500} = 0.28$

$\frac{3}{5} \neq \frac{9}{14}$

$9(5) = 45$

$3(14) = 42$