Friday - 3 October 2014

Lesson 2.2 Constant Rates of Change

Day 1
Teach objective
Assignment - Guided practice and Independent practice completed as a class

Day 2
Review
Cooperative (elbow buddy)assignment 2-2 practice and problem solving: D
2-2 Practice and problem solving: A/B

Login to Go Math
Go to the Resources Tab
Click on the Student Online Edition (yellow open book)
This will take you to another window to an interactive student edition textbook.

Go to page 67

Answers to "reflect", Explore activity" and "your turn" questions

EA. A. Division; B. 3..5, 7, 14, 17.5; C. All answers simplify to 3.5; D they are the same; E. it is a constant rate.
1. Multiplied 3.5 x 12 secs to find the distance
2. It is a constant
3. No, rates are not equal, 65, 60, 65, 55, 60
4. They are equal 12 to 1. The relationship is proportional a=1/12s

For answers to the guided practice and independent practice, see Coach Gammon.

Additional web sites
Below is a Khan academy web site. When you click on the website, there will be a couple of short videos on the left hand side that you can watch.

1. https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/slope-and-intercepts/v/slope-and-rate-of-change

Remember, on the online edition, you can click on the "math on the spot" for a little extra teaching from Prof Burger. If you only have your book, use a QR scanner on the "math on the spot"

Lesson 2-2

Identifying and Representing Proportional Rates

How can you identify a proportional relationship?

The _____ of change is _____ between the 2 quantities

How can you represent proportional relationships?

1. Find the _____ of _____ represented by ____.

2. Expressed as an equation $\frac{y}{x} = k$

How do you know when a relationship is a proportional relationship?

When the _____ of 1 quantity to another quantity is _____.

Two pounds of cashews shown cost $19, and 8 pounds cost $76. Show that the relationship between the number of pounds of cashews and the cost is a proportional relationship. Then write an equation for the relationship.

STEP 1 Make a table relating cost in dollars to pounds.

Number of Pounds	2	3	8
Cost ($)	19	28.50	76

STEP 2 Write the rates. Put cost in the numerator and pounds in the denominator. Then simplify each rate.

$$\frac{\text{Cost}}{\text{Number of Pounds}} \rightarrow \frac{19}{2} = 9.50 \qquad \frac{28.50}{3} = 9.50 \qquad \frac{76}{8} = 9.50$$

The rates are all equal to $9.50 per pound. They are constant, so the relationship is proportional. The constant rate of change is $9.50 per pound.

STEP 3 To write an equation, first tell what the variables represent.

- Let x represent the number of pounds of cashews.
- Let y represent the cost in dollars.
- Use the numerical part of the constant rate of change as the constant of proportionality.

So, the equation for the relationship is $y = 9.5x$.

Name _____ Date _____ Class _____

LESSON 2-2

Constant Rates of Change

Practice and Problem Solving: D

Use the table to determine whether the relationship is proportional. If so, write an equation to show the relationship between the two quantities. Tell what each of the variables you used represents. The first one has been done for you.

1.

Teams	1	2	3	4
Number of Players	6	12	18	24

a. Proportional? *yes*

b. Equation: $y = 6x$

c. Number of teams: x

d. Number of players: y

2.

Time (h)	1	2	3	4
Cars Washed	3	6	9	12

a. Proportional? _____

b. Equation: _____

c. Number of hours: _____

d. Cars washed: _____

3.

Weight (lb)	3	4	5
Cost ($)	2.25	3.00	3.75

4.

Time (min)	2	3	4
Songs Played	10	14	20

The following tables show proportional relationships. Find the constant of proportionality, *k*. Then write an equation to show the relationship between the two quantities. Tell what each of the variables you used represents. The first one has been done for you.

5.

Apples	5	10	15	20
Bags	1	2	3	4

$k = \frac{1}{5}$

$y = \frac{1}{5}x$;

x = apples; y = bags

6.

Cartons	1	2	4	5
Eggs	12	24	48	60

$k =$ _____

Name _____ Date _____ Class_____

LESSON 2-2

Constant Rates of Change

Practice and Problem Solving: A/B

Use the table to determine whether the relationship is proportional. If so, write an equation for the relationship. Tell what each variable you used represents.

1.

Number of tickets	2	3	4	5
Total Cost ($)	54	81	108	135

a. Proportional? _____

b. Equation: _____

c. Number of tickets: _____

d. Total Cost: _____

2.

Weight (lb)	4	5	46
Total Cost ($)	17.40	21.75	200.10

a. Proportional? _____

b. Equation: _____

c. Weight: _____

d. Total cost: _____

3.

Time (h)	2	3	4	5	6
Pages Read	50	75	90	110	120

_____

_____

4.

Time (h)	2	3	4
Distance (mi)	80	120	160

_____

_____

The tables show proportional relationships. Find the constant of proportionality, *k*. Write an equation to represent the relationship between the two quantities. Tell what each variable represents.

5.

Pens	3	6	9	12
Boxes	1	2	3	4

_____

_____

6.

Pack	1	2	4	5
Muffins	6	12	24	30

_____

_____

7. a. Create a table to show how the number of days is related to the number of hours. Show at least 5 days.

b. Is the relationship proportional? _____

c. Write an equation for the relationship. _____