Name:	Date:

Unit 3 Lesson 4 Guided Notes

Unit Guiding Question	*When and why do I use proportional comparisons?*
Objective	I can represent proportional relationships by equations in real-world contexts.

Directions: As you go through the PPT and watch the video made by your teacher, complete the guided notes below to ensure your understanding of the content. Be sure to challenge yourself and persevere through new concepts. ***If you have a question:*** *1) Re-watch the video 2) Ask a friend 3) Ask your teacher*

Review
<u>Remember</u>: A **variable** is a symbol (such as a letter) that is a placeholder for a number. $K = \frac{y}{x}$ or $y = kx$

You Try!

1. There are 3 cans that store 9 tennis balls. Consider the number of balls per can.
     a. Find the constant of proportionality for this situation.

     b. Write an equation to represent the relationship.

2. In 25 minutes Li can run 10 laps around the track. Determine the number of laps she can run per minute.
     a. Find the constant of proportionality in this situation.

     b. Write an equation to represent the relationship.

3. Jennifer is shopping with her mother. They pay $2 per pound for tomatoes at the vegetable stand.
     a. Find the constant of proportionality in this situation.

     b. Write an equation to represent the relationship.

4. It costs $15 to send 3 packages through a certain shipping company. Consider the number of dollars per package.
     a. Find the constant of proportionality for this situation.

     b. Write an equation to represent the relationship.

Example 1: Do We Have Enough Gas to Make It to the Gas Station?

Your mother has accelerated onto the interstate beginning a long road trip, and you notice that the low fuel light is on, indicating that there is a half a gallon left in the gas tank. The nearest gas station is 26 miles away. Your mother keeps a log where she records the mileage and the number of gallons purchased each time she fills up the tank. Use the information in the table below to determine whether you will make it to the gas station before the gas runs out. You know that if you can determine the amount of gas that her car consumes in a particular number of miles, then you can determine whether or not you can make it to the next gas station.

Mother's Gas Record

Gallons	Miles Driven
8	224
10	280
4	112

a. Find the constant of proportionality, and explain what it represents in this situation.

b. Write equation(s) that will relate the miles driven to the number of gallons of gas.

c. Knowing that there is a half gallon left in the gas tank when the light comes on, will she make it to the nearest gas station? Explain why or why not.

d. Using the equation found in part (b), determine how far your mother can travel on 18 gallons of gas. Solve the problem in two ways: once using the constant of proportionality and once using an equation.

e. Using the constant of proportionality, and then using the equation found in part (b), determine how many gallons of gas would be needed to travel 750 miles.

Al's Produce Stand sells 6 ears of corn for $1.50. Barbara's Produce Stand sells 13 ears of corn for $3.12. Write two equations, one for each produce stand, that model the relationship between the number of ears of corn sold and the cost. Then, use each equation to help complete the tables below.

Al's Produce Stand

Ears	6	14	21	
Cost	$1.50			$50.00

Barbara's Produce Stand

Ears	13	14	21	
Cost	$3.12			$49.92