

**Warm-Up**      **9/11/19**

1. Translate to algebraic expression: "four times the square of a number subtracted from 35."
2. Use the digits 1-9 to create 3 equivalent fractions. Each digit can only be used once. (Hint: think halves)
3. What are two equivalent fractions of  $\frac{6}{9}$  ?

Aug 11-7:45 AM

**9/11/19**      **Module 2**

**Day 1 - Equivalent Ratios**

**Essential Question**

How do I use different models to find and interpret equivalent ratios?


Aug 4-12:19 PM

2. How many muffins are blueberry muffins if there are a total of 35 muffins?
3. How many total muffins are there if 8 muffins are blueberry?
4. How many blueberry muffins if there 27 non blueberry muffins?

**Ratios and Proportions 9/11/19**

A **ratio** is a comparison of two nonnegative quantities that uses division. Ratios can compare part to part or part to whole relationships. Words that indicate ratio relationships are \_\_\_\_\_.

Consider the following scenario: On the co-ed soccer team, there are four times as many boys on it as it has girls. We would say the ratio is 4:1.



Part to Part Comparisons		Part to Whole Comparisons	

What other ratios would show four times as many boys as girls?

Aug 15-7:52 AM

**Practice**

Practice: Create a ratio to describe the following:

- a. There are 2 basketballs for every soccer ball.
- b. There are 3 blueberry muffins in a 6 pack of muffins.
- c. Each bagel costs \$0.45.
- d. For every 3 boys at soccer camp, there are 2 girls.
- e. Billy wanted to write a ratio of the number of apples to the number of peppers in his refrigerator. He wrote 1:3. Did Billy write the ratio correctly?



Sep 9-1:23 AM

**Rates Vs. Ratios**

A **rate** is a ratio that compares two quantities that are measured in different units. If the rate is expressed as per 1 unit, it is considered a **unit rate**. When two ratios or rates are equivalent to each other, you can write them as a proportion. A **proportion** is an equation that states two ratios are equal.

Ratio	Rate	Unit Rate	Proportion
2 red roses: 5 white roses	90 miles: 2 hours	45 miles: 1 hour	$\frac{90 \text{ miles}}{2 \text{ hours}} = \frac{45 \text{ miles}}{1 \text{ hour}}$

Determine if the following can best be described as a ratio, rate, or unit rate:

- a. 8 sugar cookies to 3 chocolate chip cookies
- b. 45 feet per second
- c. 6 inches for every 3 years
- d. 6 boys for every 4 girls

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### Scaling Up or Down

When we want to create equivalent ratios, we can use the same method as creating equivalent fractions. This is called scaling up or scaling down. Use the scaling up or scaling down method to determine the unknown quantity.


a.  $\frac{12 \text{ in.}}{1 \text{ ft}} = \frac{48 \text{ in.}}{?}$                       b.  $\frac{3 \text{ ft}}{1 \text{ yd}} = \frac{?}{4 \text{ yd}}$

c.  $\frac{360 \text{ min}}{6 \text{ hrs}} = \frac{?}{1 \text{ hr}}$                       d.  $\frac{300 \text{ cm}}{3 \text{ m}} = \frac{100 \text{ cm}}{?}$

e.  $\frac{64 \text{ fl oz}}{8 \text{ cups}} = \frac{?}{1 \text{ cup}}$                       f.  $\frac{16 \text{ c}}{8 \text{ pt}} = \frac{?}{1 \text{ pt}}$

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Scenario: Two out of every five muffins are blueberry in one muffin variety pack. You may use any sort of reasoning to answer the questions below (blueberry muffin equations, etc).



1. How many muffins are blueberry muffins if there are a total of 25 muffins?

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$\frac{126 \text{ words}}{3 \text{ minutes}} = \frac{?}{1 \text{ minute}}$        $\frac{126}{3} = \frac{3x}{3}$        $x = 42 \text{ min}$

$\frac{65 \text{ miles}}{1 \text{ hour}} = \frac{195 \text{ miles}}{?}$        $\frac{65x}{65} = \frac{195}{65}$        $x = 3$

### Tables - I do

We can also use tables to determine equivalent ratios. Using the table below, show two calculations for the amount 100 lbs on Earth to 25 lbs on the moon.

Weight on Earth (lbs)	60	30	90	120	150
Weight on the moon (lbs)	10	5	15	20	25

$\frac{60 \text{ lbs on E}}{10 \text{ lbs on M}} = \frac{30 \text{ lbs}}{5 \text{ lbs}}$

~~$\frac{60 \text{ lbs}}{10 \text{ lbs}} = \frac{x}{25}$~~        $\frac{60x}{10} = 1500$        $x = 1500$

$\frac{60}{10} = \frac{x}{25}$        $60 \times 25 = 1500$        $x = 150$

$\frac{10x}{10} = \frac{1800}{10}$        $x = 7$        $7 = x$

$\frac{10x}{10} = \frac{1800}{10}$        $120x = 3000$        $x = 25$

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### Table Practice a. - You do!

Each table represents a series of equivalent ratios. Complete each table showing how you calculated each number.

a.

Yellow paint (oz)	1	2	10	20
Red paint (oz)	3	6	30	60

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### Table Practice b. - You do!

b.

Yellow daffodils	32			16
White daffodils		48	6	12

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### Table Practice C. - You do!

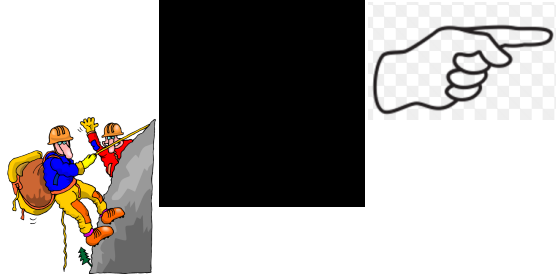
c.

Children	3	6		18	
Toys	5		15		45

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### Class Work/ HW 9/11/19

### Complete Day 1 Equivalent Ratios Practice # 1- 8 with your table partner. (15 mins)



Aug 4-12:18 PM

Day 1: Equivalent Ratios

- Write two equivalent ratios for the following statement: *For every 6 cups of flour, there are 2 cups of milk.*
- For the following part to part ratios, create two part to whole ratios:
  - a. 5:7
  - b. 3:2
  - c. 4:5
  - d. 2:5
- Create a part to part and part to whole ratio with the following statement: *There are 15 male teachers in the school. There are 35 female teachers in the school.*

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- Using the following scenario, answer the following questions about the South Cobb boys' sports:  
*Of the 80 boys at South Cobb who play a spring sport, 35 run track, 20 play baseball, and 25 play lacrosse. Create a ratio for the following:*
  - a. track to baseball
  - b. track to total number of boy athletes
  - c. baseball to track
- Analyze each statement and determine if they represent a part to part or part to whole relationship:
  - a. Four out of every 9 student play in the band.
  - b. There are 5 gifts for every 4 boys in 9<sup>th</sup> grade.
  - c. Of the 75 track runners, 30 of them are girls.
  - d. There are 10 shot-putters on the 30 member girls' track team.
  - e. There will be 1 teacher for every 25 students in 9<sup>th</sup> grade.

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- Scale up or down to find the missing quantity:
  - a.  $\frac{32 \text{ oz}}{2 \text{ lb}} = \frac{16 \text{ oz}}{?}$
  - b.  $\frac{12 \text{ hours}}{720 \text{ miles}} = \frac{4 \text{ hours}}{?}$
  - c.  $\frac{3 \text{ tickets}}{?} = \frac{1 \text{ ticket}}{\$9.00}$
- Complete the following equivalent ratio tables and show how you arrived missing value (using arrows):
  - a.
 

7		6	10
5	20		
  - b.
 

5		15	
6	12		24

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### Closing: Student-Led 9/11/19 (Last 5)

- Lela is planting flowers in her garden. Each variety pack of bulbs contains 4 lilies and 6 dahlias. How many dahlias will Lela plant if she plants 12 lilies?
 

Lilies	4	8	12
Dahlias	6		

Aug 15-8:09 AM

