──────────────── **Warm–Up** ────────────────

Directions: Find the products and quotients. All answers should be in simplest form.

1. $\frac{4}{5} \cdot \frac{2}{3}$

2. $\frac{3}{8} \cdot \frac{2}{5}$

3. $\frac{1}{9} \cdot \frac{6}{8}$

4. $\frac{7}{10} \div \frac{1}{2}$

5. $\frac{3}{8} \div \frac{3}{4}$

6. $\frac{6}{11} \div \frac{2}{7}$

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

> Jeremiah is mowing the yard, which is 2 acres in size. He has mowed $\frac{1}{4}$ of an acre in $\frac{1}{12}$ of an hour. When he is done mowing his yard, he also has to mow his neighbor's yard which is 1 acre. If he can continue at the same rate, what is the unit rate for the number of acres he can mow in one hour?
>
> **S** Underline the question.
>   This problem is asking me to find _____
>
>   _____.

Directions: Complete the recording sheet below with your teacher.

A.	B.	C.

1. The relationship between the red counters and the yellow counters in Box A is

_____.

2. This relationship is called a _____, which is defined as _____

_____.

3. There are three ways to write a ratio:

Directions: Complete this page with your teacher and partner.
1.

What is the ratio of red counters to yellow counters? _____.
How many equal groups can be created with 1 yellow counter in each group?____.
How many red counters are in each group? _____.
What is the unit rate for each group? _____.

2.

What is the ratio of red counters to yellow counters? _____.
How many equal groups can be created with 1 yellow counter in each group? ____.
How many red counters are in each group? _____.
What is the unit rate for each group? _____.

3.

What is the ratio of red counters to yellow counters? _____.
How many equal groups can be created with 1 yellow counter in each group? _____.
How many red counters are in each group? _____.
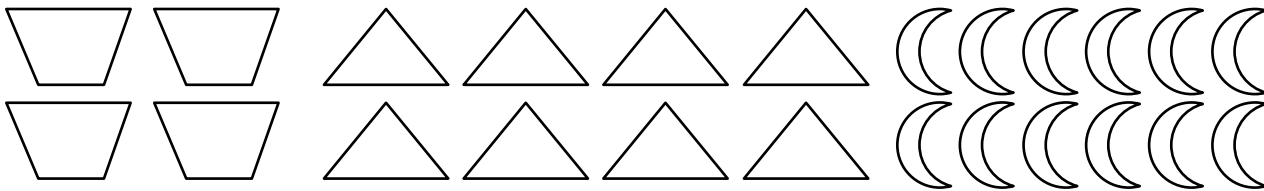What is the unit rate for each group? _____.

Directions: Complete this page with your teacher and partner.

1. What do you notice about the unit rates in Problems 1 – 3 on the previous page?

2. What operation was used to change the ratio to the unit rate in Problems 1 – 3 on the previous page?

3. Complete the graphic organizer below, based on the shapes drawn.

	Write the ratio	Divide to get a unit rate	Unit Rate
Moons to Trapezoids			
Triangles to Trapezoids			
Moons to Triangles			
Trapezoids to Triangles			

Directions: Complete this page with your teacher and partner.

As you can see from the previous page, ratios and unit rates do not always have to use whole numbers. Look at the problem below.

1. Marie is painting her bedroom. One-half gallon of paint will cover one-sixth of her wall. We can use pictures and unit rates to find the number of gallons of paint it will take to paint one whole wall.

   The rectangle below represents Marie's wall.

2. Since one-half gallon of paint will cover one-sixth of the wall. Split the wall into six equal pieces.

3. How many gallons of paint will cover each one-sixth piece of the wall?

4. Mark each piece of the wall with one-half.

5. How many one-half gallons of paint will it take to paint the whole wall?

6. How many gallons of paint will it take to paint the whole wall?

	Write the ratio	Divide to get a unit rate	Unit Rate
Gallons to Walls			

Directions: Complete this page with your partner.

1. The Masters family is having their rectangular driveway filled with concrete. It takes $\frac{1}{3}$ of a ton of concrete to cover $\frac{1}{10}$ of the driveway. What is the unit rate for tons of concrete per driveway ?

	Write the ratio	Divide to get a unit rate	Unit Rate
Tons to Driveway			

2. Bella walks $\frac{1}{4}$ of a mile in $\frac{1}{6}$ of an hour. What is her walking rate (unit rate) per hour?

	Write the ratio	Divide to get a unit rate	Unit Rate
Miles to Hour			

3. A recipe calls for $\frac{1}{3}$ of a teaspoon of salt to make half of a pound of fudge. What is the unit rate of salt per pound of fudge?

4. A helicopter can travel $\frac{1}{5}$ of a mile in 20 seconds. What is the unit rate in miles per second?

Directions: Complete the following SOLVE problem with your teacher.

Jeremiah is mowing the yard, which is 2 acres in size. He has mowed $\frac{1}{4}$ of an acre in $\frac{1}{12}$ of an hour. When he is done mowing his yard, he also has to mow his neighbor's yard which is 1 acre. If he can continue at the same rate, what is the unit rate for the number of acres he can mow in one hour?

S Underline the question.
This problem is asking me to find _____

_____.

O Identify the facts.
Eliminate the unnecessary facts.
List the necessary facts.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.
Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)
Write your answer in a complete sentence.

Directions: Complete this page with your partner.

1. The Jacksons are filling their in-ground pool. The pool is large and fills $\frac{1}{4}$ of an inch every $\frac{1}{3}$ of an hour. At this rate, how full will the pool be after one hour?

	Write the ratio	Divide to get a unit rate	Unit Rate
Inches per Hour			

2. Erica walks $\frac{1}{5}$ of a mile in $\frac{1}{12}$ of an hour. What is her walking rate (unit rate) per hour?

	Write the ratio	Divide to get a unit rate	Unit Rate
Miles per Hour			

3. A recipe calls for $\frac{1}{5}$ of a teaspoon of cayenne pepper to make 10 pounds of a pasta salad. What is the unit rate of pepper per pound of salad?

4. A plane can travel $\frac{1}{3}$ of a mile in 15 seconds. What is the unit rate in miles per second?

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Name _____   **Date** _____

Directions: For Questions 1 – 10, identify the unit rate.

1. In a flower arrangement, there are 10 tulips and 2 daisies. What is the unit rate for tulips to daisies?

2. On a trip, Jeff's car goes 112 miles and uses 4 gallons of gas. What is the unit rate for miles to gallons?

3. In Ms. Miller's class, there are 18 boys and 9 girls. What is the unit rate for boys to girls in Ms. Miller's class?

4. There are 206 bones in the adult body and 24 ribs. What is the unit rate for all bones to ribs?

5. A map has a scale of $\frac{1}{8}$ of an inch is equal to $\frac{1}{4}$ of a mile. What is the unit rate of inches per mile?

6. Brett is frosting brownies. He uses $\frac{1}{4}$ of a cup of frosting to frost $\frac{1}{9}$ of the pan. What is the unit rate of frosting per pan?

7. Trey is fertilizing his lawn. The directions say to use $\frac{1}{4}$ of a cup of fertilizer for $\frac{1}{20}$ of an acre. What is the unit rate of fertilizer per acre?

8. Tristan walks $\frac{1}{4}$ of a mile in $\frac{1}{10}$ of an hour. What is the unit rate of miles per hour?

9. When mowing her yard, Camille uses $\frac{1}{8}$ of a gallon of gas to mow $\frac{1}{6}$ of her yard. What is the unit rate of gallons per yard?

10. Kimberly is making soap for presents. The recipe she is using calls for $\frac{1}{2}$ cup of water and $\frac{1}{10}$ of a cup of fragrance. What is the unit rate of water to fragrance?