



**34 & 35**  
**10/24**

Before Lesson TO DO List:

1. Get out your homework and make sure your name is on it.
2. Write the \_\_\_\_\_ in your agenda 
3. Fill in table of contents   
p 34 & 35 L16: Rates to Ratios
4. Glue your notes on pp. 34 & 35
5. Go over your homework with your group.

unit - what you measure by. Example: city, hours, etc.

unit rate - a rate that is simplified so that it has a denominator of 1 when it is written as a fraction



## Lesson 16



### Student Outcomes

#### • You will

recognize that they can associate a ratio of two quantities, such as the ratio of miles per hour is 5:2, to another quantity called the rate.

- Given a ratio, students precisely identify the associated rate. They identify the unit rate and the rate unit.



**\*\*HINT\*\*** A ratio compares 2 quantities of the same unit but a *rate* compares 2 different types of *units*.

P. 34

# INTRO TO RATES

A rate is a specific Comparison of 2 quantities with different units

1. Let's practice finding a rate! Take your first and second finger and find your pulse either on your wrist or on your neck. When time begins, silently count the number of beats in one minute. Record your results below, and then exchange your results with two neighbors.

YOU		NEIGHBOR		NEIGHBOR	
BEATS	TIME IN MINUTES	BEATS	TIME IN MINUTES	BEATS	TIME IN MINUTES
		72	1	70	1

Ratio: \_\_\_\_\_      Ratio:  $\frac{72}{1}$ , 72:1, 72:1      Ratio: \_\_\_\_\_

Rate: \_\_\_\_\_      Rate:  $\frac{72 \text{ beats per Min}}{1 \text{ Min.}}$       Rate: \_\_\_\_\_

Why is it beneficial to determine the rate of each person?  
To make it easier for a comparison.

**RATE**

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**UNIT RATE**

- A rate describes the comparison by division of two quantities with different units.  
Ex: miles per hour, dollars per hour
- The unit rate describes the Amount per 1 or the rate when the denominator is one.  
Ex: \$2.99 per pound, \$2.91 per gallon

Complete the table by using the following information.

$\div$

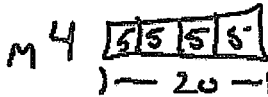
SITUATION	RATIO	UNIT RATE	RATE
2. Samuel can do 120 <u>jumping jacks</u> in two <u>minutes</u> .	120:2	$\frac{60 \text{ jj}}{1 \text{ min}}$	$\frac{120 \text{ jj}}{2 \text{ min}} = \frac{60 \text{ jj}}{1 \text{ min}}$
3. A large plane is able to cruise at 530 <u>miles per hour</u> .	530:1	$\frac{530 \text{ Mi.}}{1 \text{ hour}}$	$\frac{530 \text{ mi.}}{1 \text{ hour}} = \frac{1060 \text{ mi}}{2 \text{ hours}}$
4. A babysitter gets paid \$60 for 4 hours of work.	60:4	$\frac{\$15}{1 \text{ hour}}$	$\frac{\$60}{4 \text{ hours}} = \frac{\$15}{1 \text{ hour}}$

Rates can also be used to Solve problems and make predictions.

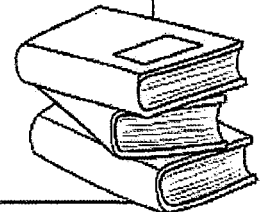
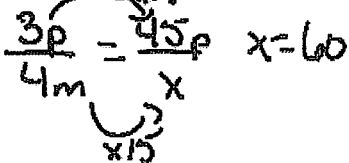
Use a tape diagram, a double number line, or a ratio table to answer the questions below.

5. Annabelle reads  $\frac{3}{4}$  of a page/minute. or = 3 pages in 4 min.

a. How many pages can Annabelle read in 20 minutes? 15 pages

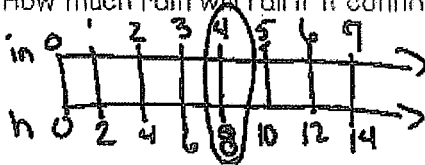


b. How long does it take Annabelle to read 45 pages? 60 min.

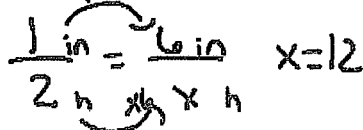


6. During a thunderstorm, the local news reports rainfall at  $\frac{1}{2}$  of an inch/hour.

a. How much rain will fall if it continues for 8 hours? 4 inches



b. How long will it take 6 inches of rain to fall? 12 hours



Unit: Rates and Percents  
Homework 1

Name \_\_\_\_\_

Date \_\_\_\_\_ Pd \_\_\_\_\_

## INTRO TO RATES

During a PE fitness test, Coach Jaminez recorded each student's stats. Help him determine which students should be promoted to the next fitness level. Complete the information missing in the table below.

<b>NICO</b>	<b>RATIO</b>	<b>UNIT RATE</b>	<b>HOW MANY IN 5 MINUTES?</b>
78 sit-ups in 2 minutes			
42 push-ups in 3 minutes			

<b>NATALIE</b>	<b>RATIO</b>	<b>UNIT RATE</b>	<b>HOW MANY IN 5 MINUTES?</b>
87 sit-ups in 3 minutes			
26 push-ups in 2 minutes			

<b>NELSON</b>	<b>RATIO</b>	<b>UNIT RATE</b>	<b>HOW MANY IN 5 MINUTES?</b>
105 sit-ups in 3 minutes			
44 push-ups in 4 minutes			

In order to be promoted you must beat the following rates in both categories:

**SIT-UPS: 35 SIT-UPS/MINUTE    PUSH UPS: 12 PUSH-UPS/MINUTE**

Who will be promoted? Justify your solution.

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