December 1, 2014 Period 4 Lesson 5.3

Learning Objective: Students will be able to find rates, unit rates, and equivalent rates.

Warm Up

Find the value of each expression in lowest terms.

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

2. $3\frac{1}{5} \div 1\frac{2}{3} \div 1\frac{2}{7}$

4. $3\frac{1}{2} \div \left(3\frac{4}{5} \div 1\frac{3}{7}\right)$

5. $4\frac{3}{4} \div 1\frac{4}{5} \div 1\frac{5}{9}$

7. $2\frac{3}{7} \div 1\frac{1}{9} \div 1\frac{2}{7}$

8. $8\frac{1}{2} \div \left(2\frac{1}{2} \div 7\frac{1}{2}\right)$

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Warm Up Answers

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

$= \frac{6}{19}$

2. $3\frac{1}{5} \div 1\frac{2}{3} \div 1\frac{2}{7}$

$= \frac{112}{75} = 1\frac{37}{75}$

4. $3\frac{1}{2} \div \left(3\frac{4}{5} \div 1\frac{3}{7}\right)$

$= \frac{25}{19} = 1\frac{6}{19}$

5. $4\frac{3}{4} \div 1\frac{4}{5} \div 1\frac{5}{9}$

$= \frac{95}{56} = 1\frac{39}{56}$

7. $2\frac{3}{7} \div 1\frac{1}{9} \div 1\frac{2}{7}$

$= \frac{17}{10} = 1\frac{7}{10}$

8. $8\frac{1}{2} \div \left(2\frac{1}{2} \div 7\frac{1}{2}\right)$

$= \frac{51}{2} = 25\frac{1}{2}$

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Homework Answers

5.2 Record and Practice Journal

Find the missing value(s) in the ratio table. Then write the equivalent ratios.

1.

Kids	3	9
Adults	1	3

3 : 1 and 9 : 3

2.

Basketballs	5	10
Footballs	10	20

5 : 10 and 10 : 20

3.

Apples	4	16
Oranges	5	20

4 : 5 and 16 : 20

4.

CDs	10	30
DVDs	9	27

10 : 9 and 30 : 27

5.

Regular	2	8	32
Decaf	3	12	48

2 : 3, 8 : 12, and 32 : 48

6.

Scooters	1	5	25
Bikes	3	15	75

1 : 3, 5 : 15, and 25 : 75

7. You read 1 chapter every hour. You read for 3 hours after school. How many chapters did you read?

3 chapters

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Lesson 5.3

December 1, 2014

Essential Question:

How can you use rates to describe changes in real-life problems?

Lesson 5.3

December 1, 2014

Lesson Objective:

Students will be able to:

find rates, unit rates, and equivalent rates.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to find rates, unit rates, and equivalent rates.
3	I can find rates, unit rates, and equivalent rates.
2	I recognize, but still need help to find rates, unit rates, and equivalent rates.
1	I do not know how to find rates, unit rates, and equivalent rates.

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Activity 1

Work with a partner on Activity 1 on page 105 of your (soft cover) Record and Practice Journal.

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$$\frac{80\ m}{2\ h} = \frac{40\ m}{1\ h}$$

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$$\frac{\$15}{3\text{ h}} = \frac{\$5}{1\text{ h}}$$

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Key Idea

Rate and Unit Rate

Words A **rate** is a ratio of two quantities using different units. A **unit rate** compares a quantity to one unit of another quantity. **Equivalent rates** have the same unit rate.

Numbers You pay $27 for 3 pizzas.

Rate: $27 : 3 pizzas

Unit rate: $9 : 1 pizza

Algebra Rate: a units : b units Unit rate: $\frac{a}{b}$ units : 1 unit

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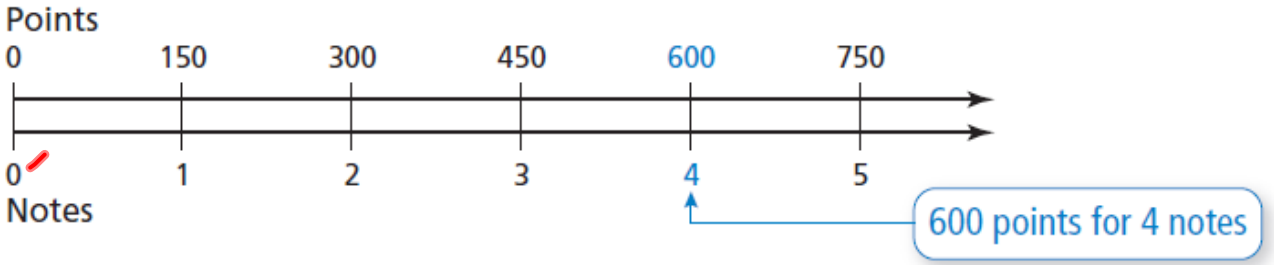
Learning Objective: Students will be able to find rates, unit rates, and equivalent rates.

1 Writing a Rate

The double number line shows the rate at which you earn points for successfully hitting notes in a music video game. Write a rate that represents this situation.



One possible rate is 600 points for every 4 notes.

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2 Finding a Unit Rate

A piece of space junk travels 5 miles in 8 seconds. How far does it travel per second?

Use a ratio table and divide by 8 to write an equivalent rate in which the time is 1 second.

$\div 8$

Distance (miles)	5	$\frac{5}{8}$
Time (seconds)	8	1

$\div 8$

The rate 5 miles : 8 seconds is equivalent to $\frac{5}{8}$ mile : 1 second.

∴ So, the space junk travels $\frac{5}{8}$ mile per second.

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3 Finding Equivalent Rates

a. A chef buys 6 pounds of salmon fillets for $51. How much will the chef pay for 9 more pounds of salmon fillets?

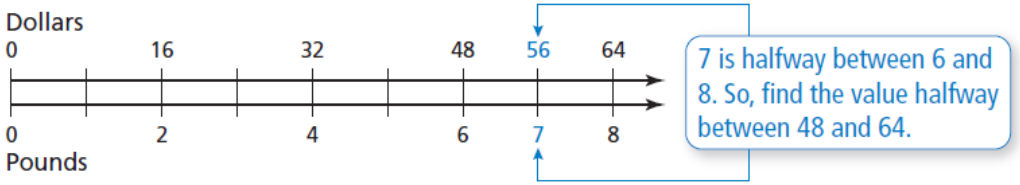
Using a ratio table, divide to find the unit rate and then multiply to find the cost for 9 pounds of salmon fillets.

		÷6	×9
Cost (dollars)	51	8.5	76.5
Salmon (pounds)	6	1	9
		÷6	×9

∴ So, the chef will pay $76.50 for 9 more pounds of salmon fillets.

b. You buy 2 pounds of tilapia fillets for $16. What is the cost for 7 pounds of tilapia fillets?

Because $16 is easily divided into halves, fourths, and eighths, it is appropriate to model the rate using a double number line.



∴ So, the cost for 7 pounds of tilapia fillets is $56.

December 1, 2014 Period 4 Lesson 5.3

Learning Objective: Students will be able to find rates, unit rates, and equivalent rates.

Lesson 5.3 December 1, 2014

Essential Question:

How can you use rates to describe changes in real-life problems?

Lesson 5.3

December 1, 2014

Lesson Objective:

Students will be able to:

find rates, unit rates, and equivalent rates.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to find rates, unit rates, and equivalent rates.
3	I can find rates, unit rates, and equivalent rates.
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December 1, 2014 Period 4 Lesson 5.3

Learning Objective: Students will be able to make ratio tables and use them to solve problems.

Homework

In your Big Ideas Record and Practice Journal page 108.