December 1, 2014 Period 5 Lesson 5.3

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

Warm Up

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

December 1, 2014 Period 5 Lesson 5.3

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

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

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

December 1, 2014 Period 5 Lesson 5.3

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

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

December 1, 2014 Period 5 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.
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.

December 1, 2014 Period 5 Lesson 5.3

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

Activity 1

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

December 1, 2014 Period 5 Lesson 5.3

$$\frac{80 \text{ miles}}{2 \text{ h}} = \frac{40 \text{ miles}}{1 \text{ hr}}$$

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

December 1, 2014 Period 5 Lesson 5.3

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

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.

Unit rate: $9 : 1 pizza

Rate: $27 : 3 pizzas

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

December 1, 2014 Period 5 Lesson 5.3

$$\frac{4 \text{ miles}}{8 \text{ hr}}$$

$$\frac{.5 \text{ mi}}{1 \text{ hour}}$$

December 1, 2014 Period 5 Lesson 5.3

$$\frac{\frac{3 \text{ miles}}{7 \text{ hrs}}}{\frac{3}{7} \text{ mi}}$$

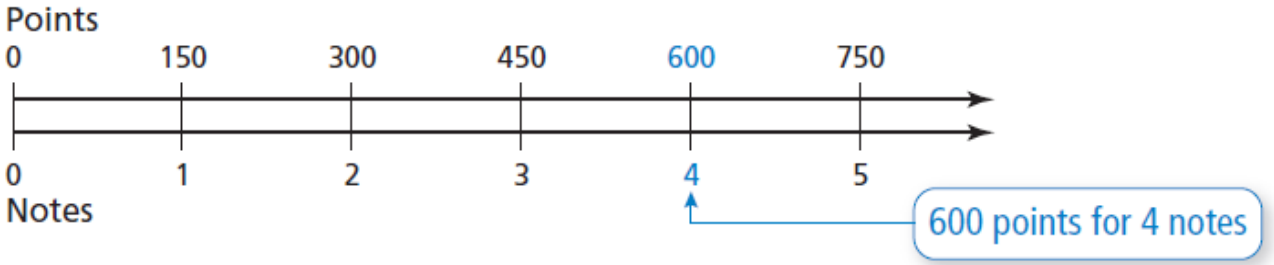
$$\frac{}{1 \text{ hr}}$$

December 1, 2014 Period 5 Lesson 5.3

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.

December 1, 2014 Period 5 Lesson 5.3

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

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.

÷ 8

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

÷ 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.

December 1, 2014 Period 5 Lesson 5.3

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

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?

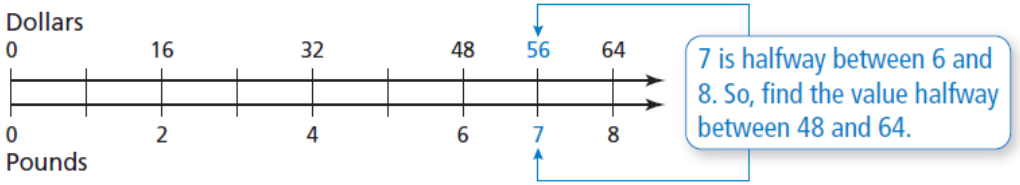
Using a ratio table, divide to find the unit rate and then multiply to find the cost for 9 pounds of salmon fillets.

		÷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 5 Lesson 5.3

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

Assignment

Complete problems:

4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, & 26

on pages 208 - 209 in your Big Ideas Text Book.

December 1, 2014 Period 5 Lesson 5.3

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

Assignment Answers

4. *Sample answer:* 18 students for every 8 computers

6. *Sample answer:* 150 gallons for every 25 seconds

8. 6 necklaces per hour

10. 19 students per class

12. 110 calories per serving

14. $2.50 per ounce

16. 60 beats per minute

18. 30 min

20. equivalent

22. equivalent

26. **a.** about 0.12 mile per minute

b. about 8.0 minutes per mile

c. The runner is talking about the rate in part (b) because "10-minute miles" is a way of talking about the rate in minutes per mile.

December 1, 2014 Period 5 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.
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.

December 1, 2014 Period 5 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.