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

Warm Up

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

7. $\frac{2}{5} \div \frac{5}{8}$

11. $\frac{1}{6} \div \frac{4}{7}$

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

8. $\frac{1}{3} \div \frac{3}{8}$

12. $\frac{1}{2} \div \frac{2}{3}$

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Warm Up Answers

3. $\frac{1}{2} \div \frac{7}{9} = \frac{9}{14}$

7. $\frac{2}{5} \div \frac{5}{8} = \frac{16}{25}$

11. $\frac{1}{6} \div \frac{4}{7} = \frac{7}{24}$

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

8. $\frac{1}{3} \div \frac{3}{8} = \frac{8}{9}$

12. $\frac{1}{2} \div \frac{2}{3} = \frac{3}{4}$

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Homework Answers

5.1 Record and Practice Journal

Write the ratio. Explain what the ratio means.

1. forks to spoons

7:5

2. toothbrushes : toothpaste

10:6

Use the table to write the ratio. Explain what the ratio means.

Marble	Number
Blue	8
Red	4
Purple	6

3. red to purple

4:6

4. blue to red

8:4

5. purple : marbles

6:18

6. marbles : blue

18:8

7. There are 22 events at an indoor track and field meet. The ratio of track events to field events is 8 : 3. How many of the events are track events?

16

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

Lesson 5.2

December 20, 2016

Essential Question:

How can you find two ratios that describe the same relationship?

Lesson 5.2

December 20, 2016

Lesson Objective:

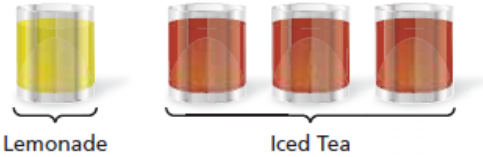
Students will be able to:

make ratio tables and use them to solve problems.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to make ratio tables and use them to solve problems.
3	I can make ratio tables and use them to solve problems.
2	I recognize, but still need help to make ratio tables and use them to solve problems.
1	I do not know how to make ratio tables and use them to solve problems.

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



a. How many total cups does the mixture contain? ____ cups

For every ____ cup of lemonade, there are ____ cups of iced tea.

b. How do you make a larger batch of this mixture? Describe your procedure and use the table below to organize your results. Add more columns to the table if needed.

Cups of Lemonade						
Cups of Iced Tea						
Total Cups						

c. Which operations did you use to complete your table? Do you think there is more than one way to complete the table? Explain.

d. How many total cups are in your final mixture? How many of those cups are lemonade? How many are iced tea? Compare your results with those of other groups in your class.

e. Suppose you take a sip from every group's final mixture. Do you think all the mixtures should taste the same? Do you think the color of all the mixtures should be the same? Explain your reasoning.

f. Why do you think it is useful to use a table when organizing your results in this activity? Explain.

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Two ratios that describe the same relationship are **equivalent ratios**. You can find equivalent ratios by:

- adding or subtracting quantities in equivalent ratios.
- multiplying or dividing each quantity in a ratio by the same number.

You can find and organize equivalent ratios in a **ratio table**.

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

1 Completing Ratio Tables

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

a.

Pens	1	2	
Pencils	3		9

b.

Dogs	4		24
Cats	6	12	

a. You can use repeated addition with the original ratio to find the missing values.

		+1	+1
Pens	1	2	3
Pencils	3	6	9
		+3	+3

∴ The equivalent ratios are 1 : 3, 2 : 6, and 3 : 9.

b. You can use multiplication to find the missing values.

		×2	×3
Dogs	4	8	24
Cats	6	12	36
		×2	×3

∴ The equivalent ratios are 4 : 6, 8 : 12, and 24 : 36.

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2 Making a Ratio Table

You are making sugar water for your hummingbird feeder. A website indicates to use 4 parts of water for every 1 part of sugar. You use 20 cups of water. How much sugar do you need?

You can solve this problem by using equivalent ratios. The ratio of water to sugar is 4 parts to 1 part. So, for every 4 cups of water, you need 1 cup of sugar. Find an equivalent ratio with 20 parts water.

Method 1: Use a ratio table and addition.

You can think of making a larger batch of sugar water as combining several batches of 4 to 1 mixtures. Use addition to obtain 20 in the water column.

	+4	+4	+4	+4	
Water (cups)	4	8	12	16	20
Sugar (cups)	1	2	3	4	5
	+1	+1	+1	+1	

The ratio 20 to 5 is equivalent to 4 to 1.

∴ So, you need 5 cups of sugar.

Method 2: Use a ratio table and multiplication.

You multiplied the amount of water in the recipe by 5 because $20 \div 4 = 5$. So, you need to multiply the amount of sugar by 5. Multiply each part of the ratio in the original recipe by 5.

	×5	
Water (cups)	4	20
Sugar (cups)	1	5
	×5	

The ratio 20 to 5 is equivalent to 4 to 1.

∴ So, you need 5 cups of sugar.

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

3 Using a Ratio Table

The nutrition facts label on a box of crackers shows that there are 240 milligrams of sodium in every 36 crackers.

a. You eat 15 crackers. How much sodium do you consume?

The ratio of sodium to crackers is 240 to 36. Use a ratio table to find an equivalent ratio with 15 crackers.

÷2 ÷6 ×5

Sodium (milligrams)	240	120	20	100
Crackers	36	18	3	15

÷2 ÷6 ×5

The ratio 100 to 15 is equivalent to 240 to 36.

∴ So, you consume 100 milligrams of sodium.

b. You eat 21 crackers. How much sodium do you consume?

Notice that you can add the two middle columns in the table above.

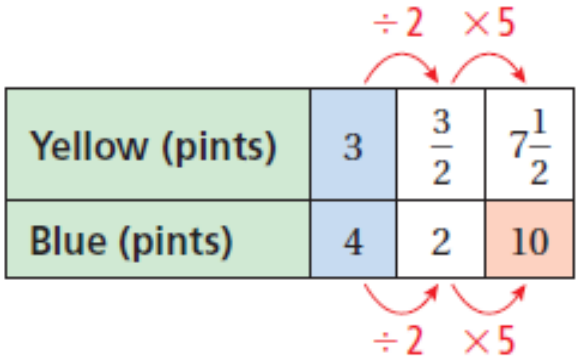
∴ So, you consume 120 + 20 = 140 milligrams of sodium in 18 + 3 = 21 crackers.

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

4 Using a Ratio Table

You mix 3 pints of yellow paint for every 4 pints of blue paint to make green paint. You use 10 pints of blue paint. How much green paint do you make?

The ratio of yellow paint to blue paint is 3 to 4. Use a ratio table to find an equivalent ratio with 10 parts blue paint.



You use $7\frac{1}{2}$ pints of yellow paint and 10 pints of blue paint.

∴ So, you make $7\frac{1}{2} + 10 = 17\frac{1}{2}$ pints of green paint.

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

Assignment

Complete problems:

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

on pages 201-202 in your Big Ideas Text Book.

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

Assignment Answers

4. The ratio of baseballs to gloves can be described by 8 : 4, 4 : 2, or 2 : 1.

6.

Boys	1	2
Girls	5	10

1 : 5 and 2 : 10

8.

Taxis	6	18	36
Buses	5	15	30

6 : 5, 18 : 15, and 36 : 30

10.

Towels	14	7	28
Blankets	8	4	16

14 : 8, 7 : 4, and 28 : 16

12. $68

14.

Printers	2	4	8	16
Computers	5	10	20	40

16 printers

16.

Girls	81	9	18
Boys	72	8	16

18 girls

18. Each part of the original ratio was not multiplied by the same number.

Sample answers:

A	5	25	125
B	3	15	75

or

A	5	15	45
B	3	9	27

20. 32 rock songs

22. Add the corresponding quantities of Recipes C and D to create Recipe F.

24. Subtract the corresponding quantities of Recipe C from Recipe F to create Recipe D.

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Lesson 5.2

December 20, 2016

Essential Question:

How can you find two ratios that describe the same relationship?

Lesson 5.2 December 20, 2016

Lesson Objective:

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Homework

In your Big Ideas Record and Practice Journal page 104.