Unit 7 Ratios

Application Part 2

CCSS: 6.RP.A.1

UNIT 5: ESSENTIAL QUESTIONS

01. How are ratios related to fractions and decimals?

02. What does it mean for ratios to be equivalent?

03. In what ways do ratios apply to real world problems?

LEARNING OBJECTIVES

✓ Create ratios from a table.

✓ Use ratios to solve real-world problems.

Warm-Up: Reducing Ratios

The following table shows the number of boys and girls in each grade at Minden Middle School.

Grade	6th	7th	8th
Male	45	25	55
Female	25	45	60

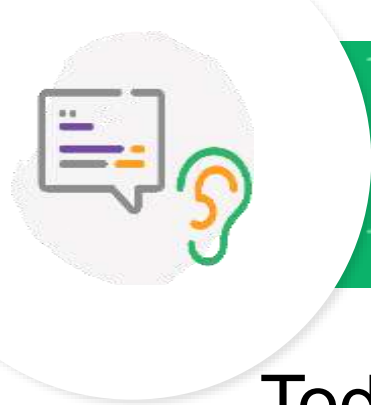What is the ratio of total 8th graders to total 7th graders?

Warm-Up: Reducing Ratios

The following table shows the number of boys and girls in each grade at Minden Middle School.

Grade	6th	7th	8th
Male	45	25	55
Female	25	45	60

What is the ratio of total 8th graders to total 7th graders?
115:70, which reduces to 23:14.

I Do: Ratio Tables

Today we are going to pull information from tables and use it to build ratios and answer questions.

The following table displays the number of students in each grade at Minden Lower School as well as the number of males and females in each class.

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

I Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of males to females in the first grade?

I Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of males to females in the first grade?

From the table I can see that there are 12 males and 28 females in first grade. The ratio of males to females is 12:28.

I need to reduce this. 12:28 = 3:7

I Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of males to females in the first grade?

The ratio of males to females is 12:28.

I need to reduce this. 12:28 = 3:7

The ratio of males to females in the first grade is 3:7.

I Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of females to males in the 3rd grade?

I Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of females to males in the 3rd grade?

From the table I can see that there are 20 females and 15 males in first grade. The ratio of females to males is 20:15.

I need to reduce this. 20:15 = 4:3

I Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of females to males in the 3rd grade?

The ratio of males to females is 20:15.

I need to reduce this. 20:15 = 4:3

The ratio of females to males in the first grade is 4:3.

We Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of males to females in the 5th grade?

We Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of males to females in the 5th grade?

The ratio of males to females is 18:12.

I need to reduce this. 18:12 = 3:2

The ratio of males to females in 5th grade is 3:2

We Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 4th grade males to total 4th grade students?

The ratio of 4th grade males to total 4th grade students is 24:56.

The ratio of 4th grade males to total 4th grade students is 3:7

You Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 2nd grade males to total 2nd grade students?

You Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 2nd grade males to total 2nd grade students?

The ratio of 2nd grade males to total 2nd grade students is 15:30.

The ratio of 2nd grade males to total 2nd grade students is 1:2

You Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 6th grade females to total 6th grade students?

You Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 6th grade females to total 6th grade students?

The ratio of 6th grade females to total 6th grade students is 2:5.

You Do: Ratio Tables

	1st	**2nd**	**3rd**	**4th**	**5th**	**6th**	**Total**
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 6th grade females to total female students?

What is the ratio of total females to total males?

You Do: Ratio Tables

	1st	2nd	3rd	4th	5th	6th	Total
Male	12	15	15	24	18	21	105
Female	28	15	20	32	12	14	121
Total	40	30	35	56	30	35	226

What is the ratio of 6th grade females to total female students?

The ratio of 6th grade females to total female students is 1:5

What is the ratio of total females to total males?

The ratio of total females to total males is 105:121.

Let's Summarize

We just pulled data from tables and created ratios based on that data.

How do you think creating ratios from data could be helpful in the real world?

Take a minute to think, and then be prepared to share your answer.

Let's Summarize

How do you think creating ratios from data could be helpful in the real world?

Student answers.

The local zoo was considering increasing the number of pandas that it had in its habitat. They knew that 6 pandas required 45 stalks of bamboo per day. If this ratio is true, how many stalks of bamboo would 20 pandas need?

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If the ratio of pandas to stalks is 6:45, we need and equivalent ratio of 20:S.

I Do: Application

The local zoo was considering increasing the number of pandas that it had in its habitat. They knew that 6 pandas required 45 stalks of bamboo per day. If this ratio is true, how many stalks of bamboo would 20 pandas need?

$$\frac{pandas}{stalks} \quad \frac{6}{45} = \frac{20}{stalks}$$

In this case I cannot think of a whole number that can be multiplied by 6 to get to 20, so I will reduce first.

I Do: Application

The local zoo was considering increasing the number of pandas that it had in its habitat. They knew that 6 pandas required 45 stalks of bamboo per day. If this ratio is true, how many stalks of bamboo would 20 pandas need?

$$\frac{pandas}{stalks} \qquad \frac{6}{45} = \frac{2}{15} = \frac{20}{stalks}$$

I know I can multiply 2 x 10 to get to 20, so I need to multiply 15 x 10 to get bamboo stalks.

I Do: Application

The local zoo was considering increasing the number of pandas that it had in its habitat. They knew that 6 pandas required 45 stalks of bamboo per day. If this ratio is true, how many stalks of bamboo would 20 pandas need?

$$\frac{pandas}{stalks} \quad \frac{6}{45} = \frac{2}{15} = \frac{20}{150}$$

20 pandas would need 150 stalks of bamboo.

A farmer was trying to predict how many chickens he could have to produce eggs. He currently has 20 chickens that produce 100 eggs per week. How many eggs would 30 chickens produce?

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$$\frac{chickens}{eggs} \qquad \frac{20}{100} = \frac{1}{5} = \frac{30}{eggs}$$

I can reduce and then multiply to find the answer.

A farmer was trying to predict how many chickens he could have to produce eggs. He currently has 20 chickens that produce 100 eggs per week. How many eggs would 30 chickens produce?

$$\frac{chickens}{eggs} \qquad \frac{20}{100} = \frac{1}{5} = \frac{30}{150}$$

30 chickens would produce 150 eggs per week.

Robert walks constantly at 2 miles for every 30 minutes. If he walks for 120 minutes, How many miles will he walk?

Robert walks constantly at 2 miles for every 30 minutes. If he walks for 120 minutes, How many miles will he walk?

$$\frac{miles}{minutes} \quad \frac{2}{30} = \frac{8}{120}$$

Robert would walk 8 miles in 120 minutes.

You Do: Application

A school is expanding the number of classrooms it has. They will need to order more desks to fill the classrooms. They have 12 classrooms with 240 desk currently. How many desk do they need for 20 classrooms?

You Do: Application

A school is expanding the number of classrooms it has. They will need to order more desks to fill the classrooms. They have 12 classrooms with 240 desk currently. How many desk do they need for 20 classrooms?

$$\frac{classrooms}{desks} \qquad \frac{12}{240} = \frac{1}{20} = \frac{20}{400}$$

20 classrooms would need 400 desks.

You Do: Application

A fruit salad calls for a ratio of 5 apples for every 3 pears. If you were to use 12 pears, how many apples would you need in your fruit salad?

You Do: Application

A fruit salad calls for a ratio of 5 apples for every 3 pears. If you were to use 12 pears, how many apples would you need in your fruit salad?

$$\frac{apples}{pears} \qquad \frac{5}{3} = \frac{20}{12}$$

If you used 12 pears, you would need 20 apples.

Samantha knows that the ratio of cats to dogs at the shelter must me maintained at a ratio of 4 to 3. She has counted 48 cats at the shelter today. What is the greatest number of dogs that can be at the shelter at this time?

You Do: Application

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$$\frac{cats}{dogs} \quad \frac{4}{3} = \frac{48}{36}$$

The greatest number of dogs they can be at the shelter is 36.

Let's Summarize

We practiced solving problems using our ratio skills today.

Can you think of a time when a ratio would have helped you solve a problem? Support your answer with an explanation.

Take a minute to think, and then be prepared to share your answer.

Let's Summarize

Can you think of a time when a ratio would have helped you solve a problem? Support your answer with an explanation.

student answers

QZ/EXIT TICKET

It is time for a QZ! Take your time and do your best!