

Introducing Ratios

Lesson 2-9

DATE

TIME






Math Message

- 1 Two weeks ago, Morton and Juliana measured the heights of two tomato plants. Plant A was 2 inches and Plant B was 8 inches. Now Plant A measures 4 inches and Plant B measures 10 inches. Morton said that Plant A grew more. Juliana said that both plants grew the same amount.

How could both Morton and Juliana justify their claims?

- 2 Find the missing numbers. *2a* $\frac{1}{2} = \frac{2}{4} = \frac{10}{20}$ *2b* $\frac{\text{cats}}{\text{legs}} = \frac{1}{4} = \frac{2}{8} = \frac{5}{20}$
- a. 1 bike has 2 wheels.
 2 bikes have 4 wheels.
 10 bikes have 20 wheels.
- b. 1 cat has 4 legs.
 2 cats have 8 legs.
 5 cats have 20 legs.

- c. 3 balloons cost \$2.
 9 balloons cost \$_____.
 15 balloons cost \$_____.

- d.  to 

 to 


- 3 Draw a picture or use tiles to solve the problem.
 There are 16 tiles laid out on a table. They are all either shaded or white.
 6 out of every 8 are white.

- a. How many are white? 12
- b. Explain how you figured out your answer.

$$\frac{\text{Shaded}}{\text{white}} = \frac{2}{6}$$

$$\frac{\text{white}}{\text{total}} = \frac{6 \cdot 2}{8 \cdot 2} = \frac{12}{16}$$

Solving Ratio Problems

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- 1 For each picture, write a ratio using a colon (:). Then solve the problem.

a.



5 squares : 2 circles
~~3~~ 15 squares : 6 circles

b.



_____ boys : _____ girls
 _____ boys : 16 girls

- 2 At the right is a recipe for one loaf of bread. Write your answers as ratios.

a. How much water do you need for 5 loaves?

b. How many tablespoons of butter do you need for 5 loaves?

c. If you have enough ingredients to use 1 ounce of yeast, how much butter do you need?

d. Record the ratio of teaspoons of salt to tablespoons of butter.

_____ tsp salt : _____ tbs butter

Wheat Bread

1 c warm water

$\frac{1}{4}$ oz active dry yeast

$1\frac{1}{2}$ tbs honey

$2\frac{2}{3}$ c flour

2 tbs butter

1 tsp salt

Use pictures or other strategies to solve Problems 3–6. Show your work.

- 3 For every 4 times John is at bat, he gets 1 hit. If he got 7 hits, how many times was he at bat? _____

Record the ratio of hits to times at bat:

_____ hit(s) : _____ at bats

- 4 There are 15 tiles. 6 out of every 9 tiles are white. How many of the 15 tiles are white? _____

Record the ratio of white tiles to all tiles.

_____ white tiles : _____ total tiles

Solving Ratio Problems (continued)

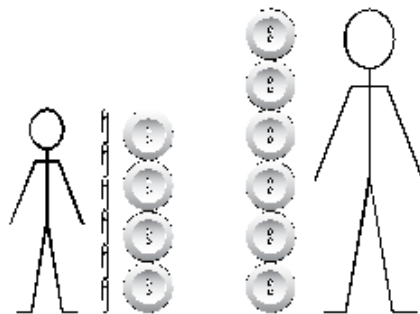
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- 5 There are 20 students in Mrs. Kahlid's sixth-grade class. Two out of every 8 students play basketball. How many students play basketball? _____

- 6 Jonathan draws 2 stick figures. One is taller than the other. The height of the shorter figure is 6 paper clips, or 4 buttons. The height of the taller figure is 6 buttons.



What is the height of the taller figure in paper clips? _____

Describe how you can use ratio(s) to solve the problem.

Try This

- 7 David took a survey of people's favorite pets. Of the people he surveyed, he found the following information:
- 2 out of every 5 chose dogs.
 - 1 out of every 4 chose birds.
 - 3 out of every 10 chose cats.
 - The rest chose another pet.

Optional

- a. If 80 people participated in David's survey, how many chose cats? _____
- b. What is the fewest number of people David could survey to get these ratios? _____
- c. Explain how you found your answer to Part b.

Going to the Amusement Park

Lesson 2-9

DATE _____

TIME _____

SRB

32

Write a number model. Then solve each problem below.

- 1 Hanna wants to buy fruit snacks to share with four of her friends. How many snacks will each person get if she shares a bag of 120 fruit snacks equally?

Number model: _____ Solution: _____

- 2 In the game Hoops, every basket is worth 3 points. Quan, Jodi, and Leshawn each made the same number of baskets, and together they scored 153 points. How many points did each of them score?

Number model: _____ Solution: _____

- 3 It costs \$3 per person to go in the Fun House. Yesterday the Fun House earned \$780. How many customers entered the Fun House?

Number model: _____ Solution: _____

- 4 Quan, Tori, Becky, and Leshawn spend \$25 total at the concession stand buying popcorn, juice, and peanuts. How much did they spend per person?

Number model: _____ Solution: _____

- 5 The Fun House allows 35 people in at a time. There are currently 110 people in line. How many groups have to go in before everyone in line has gotten into the Fun House?

Number model: _____ Solution: _____

- 6 If Jodi scores 250 points in the target game, she can win a small teddy bear. She currently has 1,250 points. How many small teddy bears can she win? A large teddy bear costs 750 points. How many large teddy bears can she win?

Number models: Small bears: _____ Large bears: _____

Solutions: Small bears: _____ Large bears: _____

- 7 Each car on the Dragon roller coaster fits 6 people. There are 5 cars. If there are 125 people in line, how many trips until everyone in line has gotten to ride?

Number model: _____ Solution: _____



1 Multiply or divide.

a. $63 * \frac{1}{9} =$ _____

b. $81 \div 9 =$ _____

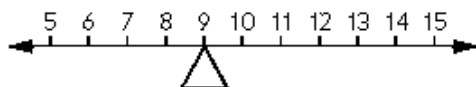
c. _____ $= 140 * \frac{1}{7}$

d. _____ $= 180 \div 6$

SRB
143-144
188

SRB
169-170

3 Create a dot plot with at least 5 data points. The balance point for the set of data needs to be 9, but none of the points may be located at 9.



SRB
265-266

SRB
160

2 Find two fractions between $\frac{1}{10}$ and $\frac{1}{9}$.

4 Write two equivalent fractions for each fraction.

a. $\frac{6}{9}$ _____

b. $\frac{2}{5}$ _____

c. $\frac{90}{100}$ _____

d. $\frac{5}{4}$ _____

SRB
265-266

SRB
160

5 How many $\frac{3}{16}$ -inch segments make up a line segment that is $1\frac{1}{8}$ inches long? Fill in the circle next to the best answer.

(A) 6

(B) $7\frac{1}{2}$

(C) 9

(D) 18

SRB
32

SRB
106

6 Every 5 days the local sandwich shop sells tomato and cheese sandwiches. Every 2 days the sandwich shop sells veggie sandwiches. How often are both sandwiches served on the same day?

Solution: _____