



Grade 6 Warm Up

Jan. 31, 2019

Write the ratio of pepperoni pieces to pizza for each picture?

A: Pep to Pizza 8 : 2  
 B: Pep : Pizza 9 : 3  
 C: Pep : Pizza 5 : 2

Mental Math

1)  $3500 \times 20$   
 $35 \times 2 = 70$

~~$(-8) - (+5)$~~

2)  $\$6.93 + \$5.98$

$\$7 + \$6 = \$13$   
 over 9 cents  
 $= \$12.91$

3)  $3.5 \times 4$

Double half  
 $7.0 \times 2$   
 14

4)  $454 \times 100$

45400

**Practice**

1. Write each ratio 2 ways.

a) apples to pears



Apples to Pear

4 to 3

4 : 3

b) caps to scarves



Hats to Scarves

5 to 6

5 : 6

c) roses to daisies



Roses to Daisies

1 to 4

1 : 4

2. Write a ratio to show the numbers of:

a) ladybugs to ants

b) ants to ladybugs

c) ladybugs to insects

d) ants to insects



a) Ladybugs to ants

3 : 7

b) Ants to Ladybugs

7 : 3

c) Ladybugs to insects

3 : 10

d) Ants to Insects

7 : 10

3. Write each ratio in as many ways as you can.

a) red marbles to green marbles

b) green marbles to all the marbles

c) green marbles to red marbles

d) red marbles to all the marbles



a) Red: Green

10 : 4

b) Green : All

4 : 14

c) Green: Red

4 : 10

d) Red : All

10 : 14

4. Ms. Zsabo has 13 girls and 11 boys in her class.

Write each ratio.

a) girls to boys

c) boys to students

b) boys to girls

d) girls to students

a) G : B

13: 11

b) B : G

11: 13

c) B : Stu

11: 24

d) G : Stu

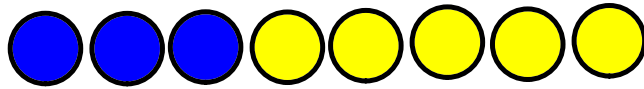
13: 24

5. What is being compared in each ratio?  
 a) 3:4 Cats: Dogs    b)  $\frac{4}{7}$  Dogs: Pets  
 c) 3 to 7 Cats: Pets    d) 4:3 Dogs: Cats



3 to 5

6. Use counters to model the ratio 3:5 in 2 different ways.  
 Draw diagrams to record your work.  
 Explain each diagram.



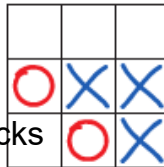
Blue : whole

3: 8

Yellow : whole

5: 8

7. Write 4 different ratios for this picture.  
 Explain what each ratio compares.



X:O

3:2

O:X

2:3

X: Total Blocks

3: 9

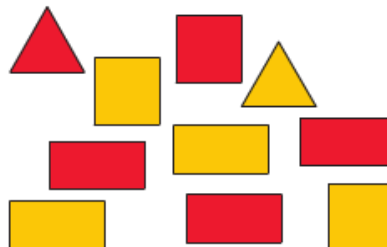
O: Total Blocks

O: Total Blocks

2: 9

8. A penny can show heads or tails.  
 Place 10 pennies in a cup. Shake and spill.  
 Write as many ratios as you can for the pennies.

9. Write a ratio to show the numbers of:  
 a) triangles to squares 2:3  
 b) squares to rectangles 3:4  
 c) triangles to all shapes 2:10  
 d) red shapes to yellow shapes 5:5  
 e) yellow triangles to yellow rectangles 1:2  
 f) red triangles to yellow squares 1:2





10. Write as many ratios as you can for the trail mix recipe.  
Explain what each ratio compares.



Raisins: nuts: papaya: Seeds

1 : 3 : 2 : 1

11. Use 11 counters to show each ratio.  
Sketch counters to record your work.

a) 5:6

b) 8 to 3

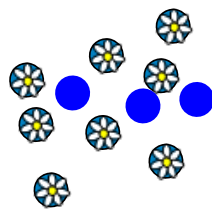
c)  $\frac{2}{11}$

d) 6:11

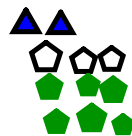
Green Pentagons: all shapes



stars: face



Flower: Rainbow



Triangle: all shapes

Name: \_\_\_\_\_ Score: \_\_\_\_\_

**Ratio In Three Ways: Part to Part** Sheet 1

Write the ratio in three different ways.

1) Books to pens



Words : book : Pen  
 Ratio : 6:5  
 Fraction : \_\_\_\_\_

2) Pumpkins to cabbages



Words : Pumpkin : Cabbage  
 Ratio : 2:7  
 Fraction : \_\_\_\_\_

3) Spiders to ladybugs



Words : Spider: Ladybug  
 Ratio : 5:3  
 Fraction : \_\_\_\_\_

4) Apples to mangosteens



Words : Apple: Mango  
 Ratio : 4:7  
 Fraction : \_\_\_\_\_

5) Snow cones to chocolates



Words : Snow: Chocolate  
 Ratio : 6:2  
 Fraction : \_\_\_\_\_

Name: \_\_\_\_\_ Score: \_\_\_\_\_

**Ratio: Part to Part** Level 1: 51

1)

The ratio of to = 4:3

2)

The ratio of to = 1:8

3)

The ratio of to = 4:5

4)

The ratio of to = 2:1

5)

The ratio of to = 3:2

Name : \_\_\_\_\_ Score : \_\_\_\_\_

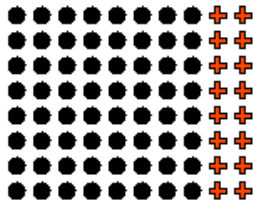
Teacher : \_\_\_\_\_ Date : \_\_\_\_\_

Find the Ratios



What is the ratio of  
♥ to + ? = 28 : 56 =  $\frac{28 \div 7}{56 \div 7}$  = 4 : 8 =  $\frac{4 \div 4}{8 \div 4}$  = 1 : 2

What is the ratio of  
+ to (♥ + +) ? = 56 : 84 =  $\frac{56 \div 7}{84 \div 7}$  = 8 : 12 =  $\frac{8 \div 4}{12 \div 4}$  = 2 : 3



What is the ratio of  
● to + ? = 64 : 16 =  $\frac{64 \div 16}{16 \div 16}$  = 4 : 1

What is the ratio of  
+ to (● + +) ? = 16 : 30 =  $\frac{16 \div 2}{30 \div 2}$  = 8 : 15



What is the ratio of  
◆ to ▲ ? = 40 : 45 =  $\frac{40 \div 5}{45 \div 5}$  = 8 : 9

What is the ratio of  
▲ to (◆ + ▲) ? = 45 : 85 =  $\frac{45 \div 5}{85 \div 5}$  = 9 : 17



What is the ratio of  
+ to ● ? = 45 : 20 =  $\frac{45 \div 5}{20 \div 5}$  = 9 : 4

What is the ratio of  
● to (+ + ●) ? = 20 : 65 =  $\frac{20 \div 5}{65 \div 5}$  = 4 : 13



## Equivalent Fraction

$$\frac{5}{7} \begin{array}{l} \times 10 \\ \times 10 \end{array} = \frac{50}{70}$$

$$\frac{5}{7} \begin{array}{l} \times 2 \\ \times 2 \end{array} = \frac{10}{14}$$

$$\frac{5}{7} \begin{array}{l} \times 3 \\ \times 3 \end{array} = \frac{15}{21}$$

$$\frac{14}{24} \div 2$$

$$\frac{7}{12}$$

$$\frac{7}{12} \times 3 = \frac{21}{36}$$

$$\frac{7}{12} \times 4 = \frac{28}{48}$$



Ratio  
→ compares 2 or more terms

term1 : term2

### Equivalent Ratios

How do you find equivalent fractions? X or ÷ both num of denom by same #  
 Similar for Ratios

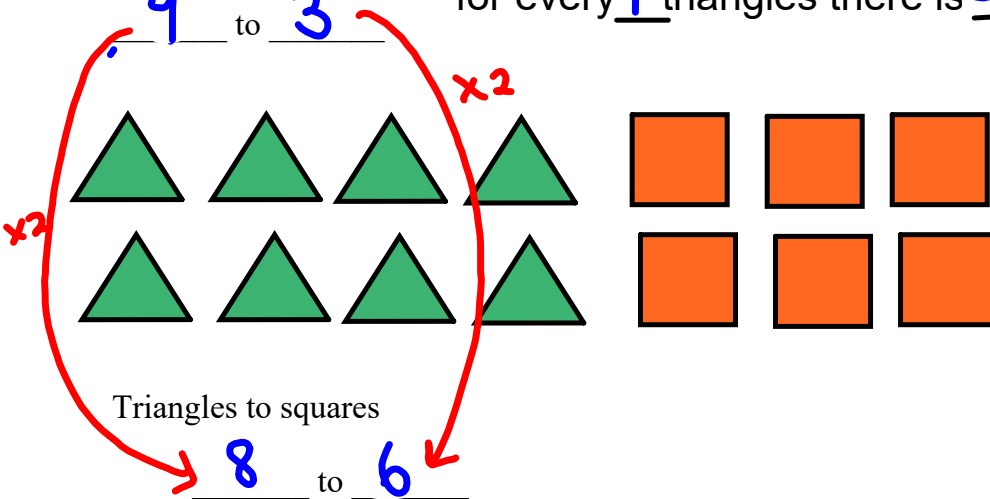


| What is the ratio of triangles to squares?

Triangles to squares

4 to 3

for every 4 triangles there is 3 squares



Triangles to squares

8 to 6

4 to 3 = 8 to 6. These are called equivalent ratios. Equivalent ratios are equal.

To find equivalent RATIOS , multiply (or divide) all terms by the same number.

You can find **equivalent ratios** by dividing.  
Divide the terms by the same number.

1st Term	20	10	4	2	
2nd Term	30	15	6	3	

Three equivalent ratios of 20:30 are:

$\div 10$

To write a ratio in its simplest form, divide the terms by their GCF.

$$21:14$$

$$\div 7 \quad \div 7$$

$$3 : 2$$

A ratio is in simplest form when its terms have no common factors.

Ex)

$$48 : 36$$

$$\div 2 \quad \div 2$$

$$24 : 18$$

$$\div 2 \quad \div 2$$

$$12 : 9$$

$$\div 3 \quad \div 3$$

$$4 : 3$$

$$48 : 36$$

$$\div 12 \quad \div 12$$

$$4 : 3$$

Examples

1. Write 3 ratios equivalent to 2:5.

$$\begin{array}{ccc}
 2:5 & \left. \vphantom{2:5} \right\} & 2:5 \\
 \times 2 & & \times 3 \\
 4:10 & & 6:15 \\
 & & \left. \vphantom{6:15} \right\} & 2:5 \\
 & & \times 4 & \times 4 \\
 & & 8:20 & 
 \end{array}$$

2. Write 3 ratios equivalent to 36:6.

$$\begin{array}{ccc}
 36:6 & & 36:6 \\
 \div 6 & & \div 6 \\
 6:1 & & 6:1 \\
 \times 2 & & \times 2 \\
 12:2 & & 12:2 \\
 \times 3 & & \times 3 \\
 18:3 & & 18:3 \\
 \text{OR} & & 36:6 \\
 & & \div 2 \\
 & & 18:3 \\
 & & \div 3 \\
 & & 6:1
 \end{array}$$

3. Construction kits come in different sizes. The regular kit contains 120 long rods, 80 short rods and 40 connectors. List 3 other kits that could be created with the same ratio of rods and connectors.

$$\begin{array}{ccc}
 LR : SR : C & & \\
 120 : 80 : 40 & & \\
 \div 10 & & \div 10 \\
 12 : 8 : 4 & & \\
 \div 2 & & \div 2 \\
 6 : 4 : 2 & & \\
 \div 2 & & \div 2 \\
 60 : 40 : 20 & & 
 \end{array}$$

## Examples

1. Write 3 ratios equivalent to 2:5.

$$4:10, 20:50, 8:20$$

2. Write 3 ratios equivalent to 36:6.

$$6:1, 12:2, 18:3$$

$$360:60, 24:4, 72:12$$

3. Construction kits come in different sizes. The regular kit contains 120 long rods, 80 short rods and 40 connectors. List 3 other kits that could be created with the same ratio of rods and connectors.

$6:4:2$  long : short : connectors  
 $12:8:4$   
 $120:80:40$

$$120 : 80 : 40$$

$$12 : 8 : 4$$

$$6 : 4 : 2$$

$$60 : 40 : 20$$

# Class/Homework

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~~182~~ 182  
#1, ~~2~~, #1 abc  
#2 abc  
#3 abc

2c)  $7:4 \xrightarrow{\times 5} 35:20$

**Practice**

1. Write 2 equivalent ratios for each ratio.
- |        |        |        |        |        |
|--------|--------|--------|--------|--------|
| a) 3:1 | b) 4:2 | c) 1:2 | d) 5:6 | e) 3:5 |
| f) 4:9 | g) 7:8 | h) 8:3 | i) 1:1 | j) 2:5 |

2. Write an equivalent ratio with 20 as one of the terms.
- |        |        |        |         |
|--------|--------|--------|---------|
| a) 4:5 | b) 2:8 | c) 7:4 | d) 10:3 |
|--------|--------|--------|---------|

3. Are the ratios in each pair equivalent? Explain how you know.
- |                       |                |                        |
|-----------------------|----------------|------------------------|
| a) 7 to 14 and 1 to 2 | b) 6:9 and 3:2 | c) 1 to 10 and 4 to 40 |
|-----------------------|----------------|------------------------|

4. The table shows the number of beads used to make a necklace. Ginger wants to make a smaller necklace using the same ratio of pink to white beads. How many different necklaces could Ginger make? How do you know?

Colour	Number
Pink	30
White	35

5. In a card game, each player is dealt 5 cards. Make a table to show the total number of cards dealt for each number of players from 3 to 6. Write each ratio of players to cards dealt.

Number of Players	Total Number of Cards Dealt



6. Ms. Olivieri's class plays a game in teams.  
Each team has the same number of students.  
The ratio of teams to players is 8:32.  
a) How many students are in Ms. Olivieri's class?  
b) How many students are on each team?

7. Atiba plays for the Linden Woods Vipers in the Winnipeg Youth Soccer League.  
The ratio of players to soccer balls at practice sessions is 5:2.  
How many soccer balls are needed for 20 players?



8. The word "fun" has a vowel-to-consonant ratio of 1:2.  
a) Find 3 words with a vowel-to-consonant ratio of 2:3.  
b) Choose a vowel-to-consonant ratio and find 3 words for it.

9. Su Mei's recipe for bean salad calls for 3 cans of lima beans, 2 cans of pinto beans, and 1 can of kidney beans.  
Su Mei is making bean salad for her family reunion.  
Suppose she uses 9 cans of lima beans.  
a) How many cans of pinto beans will she use?  
b) How many cans of kidney beans will she use?

10. Katherine has diabetes.  
At each meal, she must estimate the mass in grams of carbohydrates she plans to eat, then inject the appropriate amount of insulin.  
Katherine needs 1 unit of insulin for 15 g of carbohydrates.  
Katherine's lunch has 60 g of carbohydrates.  
How many units of insulin should Katherine inject?

11. To make a jug of plant fertilizer, Malaika uses 6 cups of water and 3 scoops of fertilizer.  
Bart uses 8 cups of water and 5 scoops of fertilizer.  
Will Malaika's and Bart's plant fertilizer have the same strength? Explain.

12. Use counters to find all the ratios that are equivalent to 2:3 and have a second term that is less than 40. List the ratios.