



Grade 8 Warm Up
Day 2 Gr 8 Math
E-Learning

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

Panel A: 2 pizzas, 8 pepperoni pieces. Ratio: $\frac{8}{2} = 4$

Panel B: 3 pizzas, 10 pepperoni pieces. Ratio: $\frac{10}{3}$

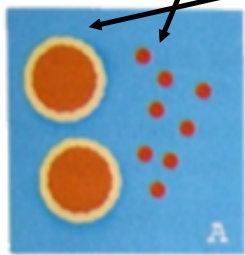
Panel C: 2 pizzas, 5 pepperoni pieces. Ratio: $\frac{5}{2}$

Solutions



Grade 8 Warm Up

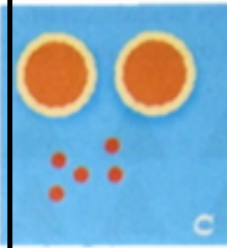
Write the ratio of pepperoni pieces to pizza for each picture?



a) Pep Pieces to Pizza
 $8 : 2$



b) Pep Pieces to Pizza
 $9 : 3$



c) Pep Pieces to Pizza
 $5 : 2$

Go over homework , pg. 266 # 1,2, 4-15

Solutions

1. A part to a whole ratio compares part of a group to a whole group, while a part to a part ratio compare one group to another group.

Example Part to a whole girls to all students
 Part to a part girls to boys

2. $4 : 35$ can be written as a percent by changing the equivalent fraction to a decimal, and then to the equivalent percent

$$4/35 = 0.114 \text{ or } 11.4\%$$

4 a) $5:8$
 $\frac{5}{8}$

b) $12:16$
 $\frac{12}{16}$

c) $4:9$
 $\frac{4}{9}$

d) $24:25$
 $\frac{24}{25}$

5 a) $19:20$
 $\frac{19}{20} = \frac{95}{100} = 95\%$

b) $12:15$
 $\frac{12}{15} = \frac{4}{5} = \frac{80}{100} = 80\%$

c) $3:8$
 $\frac{3}{8} = 0.375 = 37.5\%$


d) $5:6$
 $\frac{5}{6} = 0.833 = 83.3\%$

6. a) 3:5 → red:green
b) 7:5 → blue:green
c) 5:15 → green:all
d) 3:5:7 → red:green:blue
e) 3:12 → red to green and blue


Solutions

- 7a) orange to all
 $\frac{3}{15}$
- b) white to all
 $\frac{1}{15}$
- c) yellow to pink
7:4 7 to 4
- d) yellow: white: orange
7:1:3 7 to 1 to 3

Solutions

8. (a) T- shirts to all garments
 $5 : 7$ Because total would be shorts plus tshirts

(b) $\frac{5}{7} = 0.714$ or 71.4%

9 (a) (i) Green counter to red counters
 9 to 7

(ii) girls to boys
8 to 3

(iii) Flour to sugar to milk
3 to 1 to 2

(b) part to whole

(i) green to all
9 to 16

red to all
7 to 16

(ii) girls to students
8 to 11

boys to students
3 to 11

(iii) flour to ingredients
3 to 6

sugar to ingredients
1 to 6

milk to ingredients
2 to 6

Solutions

10. (a) boys to girls

$$12 : 14$$

(b) girls to boys

$$14 : 12$$

(c) boys to students Percent

$$\frac{12}{26}$$

$$0.462 \text{ or } 46.2\%$$

(d) 2 boys leave

new ratio

boys to students

percent

$$10 : 24$$

$$\frac{10}{24}$$

$$0.417 \text{ } 41.7\%$$

😊 11. 8 red, 5 green, 2 orange, 3 purple, 1 blue and 6 yellow

(a) (i) red: purple

$$8 : 3$$

(ii) green : blue

$$5 : 1$$

(iii) purple : blue: green

$$3 : 1 : 5$$

(iv) orange and yellow : total candies

$$8 : 25$$

(b) 3 red, 2 green and 4 yellow were eaten

(i) red: purple

$$5 : 3$$

(ii) green : blue

$$3 : 1$$

(iii) purple : blue: green

$$3 : 1 : 3$$

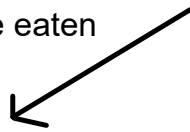
(iv) orange and yellow : total candies

$$4 : 16$$

now have

$$5r, 3g, 2o, 3p$$

$$1b, 2y$$



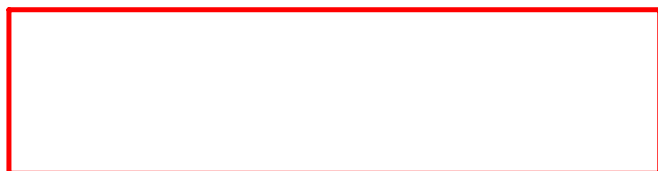
12(a) explain $\frac{2}{7}$ as a ratio

2 out of 7

Solutions

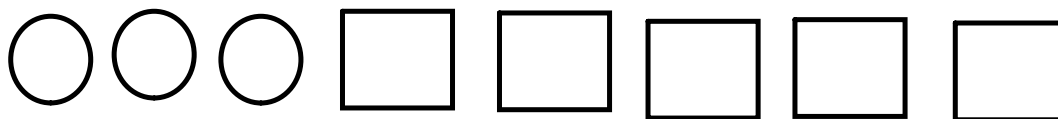
(b) real life situation

2 red markers, 7 green markers



13 Draw diagrams for

(a) two different for 3: 5



(b) 7 : 1

(c) 5 : 2 : 4

(d)

Solutions

14. (a) total amount of ingredients



11 cups

$$3+3+2+1+2 = 11$$

(b) oranges to apples

3 : 2

mayonnaise to macaroni

2 : 3

apples to mayonnaise to celery

2 : 2 : 1

(c) apples and oranges to total ingredients

5 : 11

fraction

$\frac{5}{11}$

percent

0.455

45.5%

(d) with 2 oranges instead of 3



New ingredient list

3 mac, 2 orang, 2 apple, 1 cel, 2 mayo

oranges to apples

2 : 2

mayonnaise to macaroni

2 : 3

apples to mayonnaise to celery

2 : 2 : 1

(c) apples and oranges to total ingredients

4 : 10

fraction

$\frac{4}{10}$

percent

40%

15.

Equivalent Ratios

How do you find equivalent fractions?

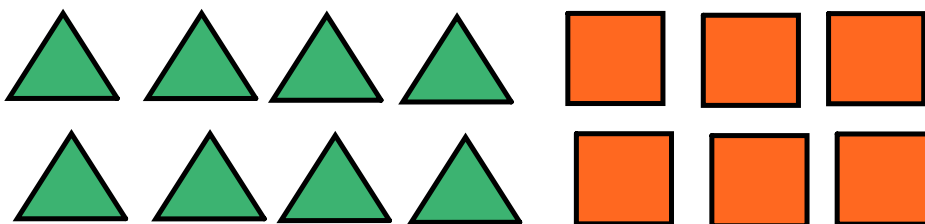


What is the ratio of triangles to squares?

Triangles to squares

4 to 3

for every 4 triangles there is 3 squares



Triangles to squares

8 to 6

$\times 2$
4 to 3 = 8 to 6. These are called equivalent ratios. Equivalent ratios are equal.

To find equivalent fractions, 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:

$$10 : 15$$

$$4 : 6$$

$$2 : 3$$

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

$$\begin{array}{c} 21:14 \\ \swarrow \div 7 \quad \searrow \div 7 \\ 3 : 2 \end{array}$$

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

Examples

1. Write 3 ratios equivalent to 2:5.

2. Write 3 ratios equivalent to 36: 6.

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.

Examples

1. Write 3 ratios equivalent to 2:5.

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

(Handwritten annotations: a blue arrow labeled 'x2' points from 2:5 to 4:10; a blue arrow labeled 'x10' points from 2:5 to 20:50; a blue arrow labeled 'x4' points from 2:5 to 8:20.)

2. Write 3 ratios equivalent to 36:6.

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

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

(Handwritten annotations: a blue arrow labeled 'x6' points from 36:6 to 6:1; a blue arrow labeled 'x2' points from 36:6 to 12:2; a blue arrow labeled 'x3' points from 36:6 to 18:3.)

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.

(Handwritten notes in green: 6:4:2, 12:8:4, 120:80:40)

long : short : connectors

$120 : 80 : 40$

$12 : 8 : 4$

$6 : 4 : 2$

$60 : 40 : 20$

You can try

1) The ratio of cats to dogs at the animal shelter is 4 to 5.
How many cats could there be? How many dogs?
Write 3 equivalent answers.



2) The length-to-width ratio of Colby's poster is 3:2.
The poster is 90 cm long. How wide is it?

Solutions

You can try

1) The ratio of cats to dogs at the animal shelter is 4 to 5.
 How many cats could there be? How many dogs?
 Write 3 equivalent answers.


Cats to Dogs

4 : 5

8 : 10

12 : 15

16 : 20



Handwritten notes: Red arrows show 4:5 to 8:10 (x2) and 8:10 to 16:20 (x2). Green arrows show 4:5 to 12:15 (x3) and 8:10 to 12:15 (x1.5). Purple arrows show 4:5 to 16:20 (x4) and 8:10 to 16:20 (x2).

2) The length-to-width ratio of Colby's poster is 3:2.
 The poster is 90 cm long. How wide is it?

L : W

3 : 2

90 : 60

→ this is a length so place
 this number under the
 length term.

↓
so width is 60 cm

You can try Page 274 (Pictured below)

#5b, 6b, 7b, 8ac, 9abc, 10cd, 12, 16

Practice

Check

5. Write 3 ratios equivalent to each ratio.
Use tables to show your work.
a) 1:2 b) 2:3 c) 1:4

6. Write 3 ratios equivalent to each ratio.
Use tables to show your work.
a) 3:4 b) 14:4 c) 24:25

7. Write 3 ratios equivalent to each ratio.
Use tables to show your work.
a) 1:3:6 b) 12:5:7 c) 24:4:8

8. Write each ratio in simplest form.
a) 5:15 b) 6:9
c) 3:12:18 d) 110:70:15

9. Write a ratio, in simplest form, to compare the items in each sentence.
a) In a class, there are 32 chairs and 8 tables.
b) In a parking lot, there were 4 American cars and 12 Japanese cars.
c) A paint mixture is made up of 6 L of blue paint, 2 L of yellow paint, and 1 L of white paint.
d) A stamp collection contains 12 Canadian stamps, 24 American stamps, and 9 Asian stamps.


10. Find the missing number in each pair of equivalent ratios.
a) 2:7 and \square :28
b) 5:12 and 25: \square
c) \square :24 and 5:3
d) 3: \square :11 and 30:70:110

Apply

11. a) Find pairs of equivalent ratios:
2:3:4 9:12:15
8:5:4 1:2:3
3:2:1 16:10:8
3:6:9 6:9:12
5:8:4 3:4:5
b) Tell how you know they are equivalent.

12. In a class library, 3 out of 4 books are non-fiction. The rest are fiction.
a) How many non-fiction books could there be? How many fiction books could there be?
b) How many different answers can you find for part a? Which answers are reasonable? Explain.

13. The official Canadian flag has a length-to-width ratio of 2:1.



Doreen has a sheet of paper that measures 30 cm by 20 cm. What are the length and width of the largest Canadian flag Doreen can draw? Sketch a picture of the flag.

16. **Take It Further** There are 32 students in a Grade 8 class.

The ratio of girls to boys is 5:3.

a) How many boys are in the class?

b) How many girls are in the class?

How did you find out?



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1. Answer will vary
Students' opinion
2. A ratio is in simplest form if
a) there are no common factors in the terms.
b) Example 1 is simplest form,
Ex 2 is not.

4. Are $3:2$ and $2:3$ the same?
★
Order is important, so no the ratios are not the same.

5 a) $1:2$
★ ★ $2:4, 4:8, 8:16$

★ b) $2:3$
 $4:6, 40:60, 10:15$

★ c) $1:4$
 $2:8, 4:16, 10:40$

6 a) $3:4$

★ $30:40, 6:8, 12:16$

★ b) $14:4$

$28:8, 42:12, 7:2$

★ c) $24:25$

$240:250, 48:50, 72:75$

7 a) $1:3:6$

★ $2:6:12, 4:12:24, 3:9:18$

★ b) $12:5:7$

$24:10:14, 36:15:21, 48:20:28$

★ c) $24:4:8$

$12:2:4, 240:40:80, 6:1:2$

★ 8 a) $5:15$
 $1:3$

★ b) $6:9$
 $2:3$

★ c) $3:12:18$
 $1:4:6$

★ d) $110:70:15$
 $22:14:3$

9 a) chairs : tables

$$\star \quad 32 : 8$$

$$4 : 1$$

★ b) Amer cars : Jap. cars

$$4 : 12$$

$$1 : 3$$

★ c) blue paint : yellow paint : white paint

$$6 : 2 : 1$$

★ d) Canadian stamps : Amer stamps : Asian stamps

$$12 : 24 : 9$$

$$4 : 8 : 3$$

10 a) ★ $2 : 7 = \frac{\quad}{8} : 28$

$$\begin{matrix} \times 4 & \times 4 \\ 2 & 7 \end{matrix}$$

★ b) $5 : 12 = 25 : \frac{\quad}{60}$

$$\begin{matrix} \times 5 & \times 5 \\ 5 & 12 \end{matrix}$$

★ c) $\frac{\quad}{40} : 24 = \frac{5}{\times 8} : \frac{3}{\times 8}$

★ d) $3 : \underline{7} : 11 = 30 : 70 : 110$

$$\star \text{!!} \quad 2:3:4 = 6:9:12$$

$$8:5:4 = 16:10:8$$

$$3:2:1 =$$

$$3:6:9 = 1:2:3$$

$$5:8:4$$

$$9:12:15 = 3:4:5$$

\star b) They are equivalent if each term is multiplied or divided by the same number.

12. non fiction: fiction

$$3:1$$

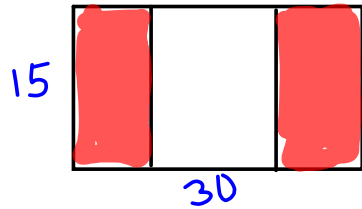
$$300:100$$

$$1500:500$$

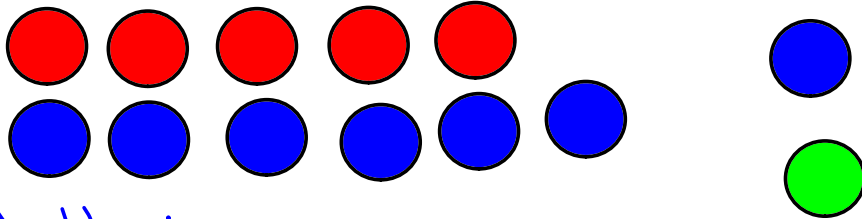
b) There are numerous answers, depending on the size of the library.

13. Length: width
 $\frac{2}{20} : \frac{1}{10}$
 $30 : 15$

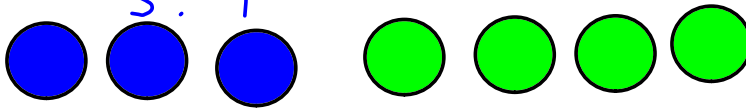
- largest from the sheet of paper



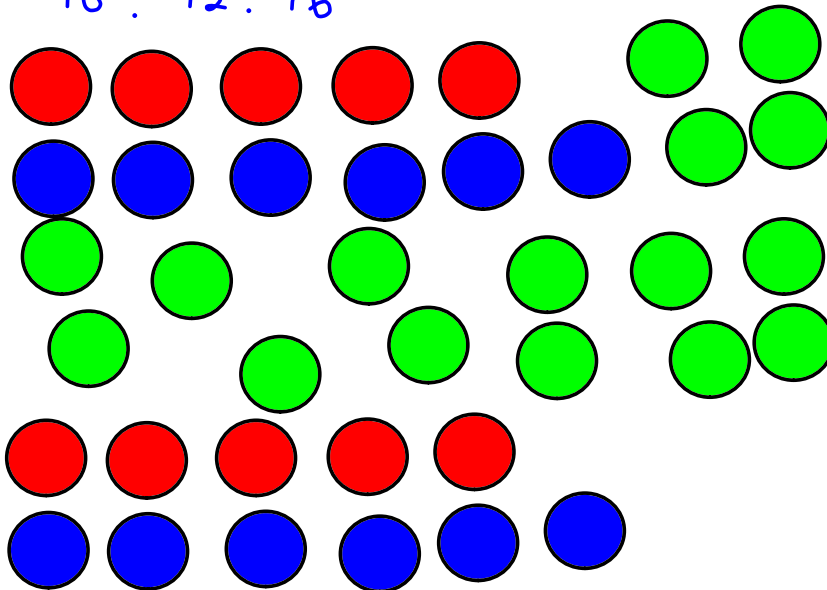
14. red : blue
 $5 : 6$



b) blue : green
 $3 : 4$



c) red : blue : green
 $10 : 12 : 16$



(b) $\frac{10}{10} : \frac{12}{12} : \frac{16}{16}$
 satisfies all 3.

16) B : G : total

$$5 : 3 : 8 \quad (\text{since } 5 + 3 = 8)$$
$$\underline{\quad} : \underline{\quad} : 32$$

a) There are $5 \times 4 = 20$ boys in the class

b) There are $3 \times 4 = 12$ girls in the class