Study the following.

ratio (**ray**-shee-oh) – a ratio is used to compare the sizes of two quantities. They compare two numbers.

Ratios can be written three ways.

1. 2 to 10
2. 2 : 10
3. 2/10 or $\frac{2}{10}$

unit of measure (**yoo**-nit of **mezh**-ur) – a fixed amount used for measuring. (An inch is a unit of measure used to measure how long something is.)

unit (**yoo**-nit) – the same as unit of measure

Say each word out loud and write it in the blank.

ratio_____
unit_____
measure_____

Write each definition in your own words.

ratio

unit of measure

unit

Write 6 examples of ratios.

Write these ratios two other ways.

1. 1/6
2. 3/5
3. 2:7
4. 9:13
5. 8 to 10
6. 15 to 22

Saying ratios. Say “to” where you see the following

To : / --- Examples: 3:2 say 3 to 2

Write 2 sentences using each word below.

unit of measure
1.

2.

unit
1.

2.

Write 5 examples of units of measure.

Circle the units of measure.

5 quarts	8 minutes	17 hits
10 inches	66 pounds	4 dollars
8 miles	10 meters	6 cups

Matching.

ratio	a fixed amount used for measuring
unit of measure	the same as unit of measure
unit	used to compare the sizes of two quantities

Study the following.

There are 3 different types of ratios.

Type	Description	example
Type 1	The ratio of a part to a whole. (Similar to a fraction.)	16 girls 30 students
Type 2	The ratio of a part to a part.	16 girls in the class or 9 girls in one class 14 boys in the class 8 girls in another class
Type 3	The ratio of a whole to another whole.	30 students in one class 33 students in another class

Use the information in the table below to write the ratios asked for.

	Joe	Sam	Total pens or pencils
Pens	6	10	16
Pencils	8	7	15
Total Writing tools	14	17	

Write 6 ratios like type 1.

Write 3 ratios like type 2.

Write 2 ratios like type 3.

Make up your own table of information below.
Write the ratios asked for.

Write 6 ratios like type 1.

Write 3 ratios like type 2.

Write 2 ratios like type 3.

Study the following.

term (**turm**) - each number in a ratio. Each ratio has two terms.

numerator (**noo**-muh-ray-tur) - the first or top number of a fraction or ratio.

denominator (di-**nom**-uh-nay-tur) - the second or bottom number of a fraction or ratio.

Say each word out loud and write it in the blank.

term_____
numerator_____
denominator_____

Write each definition in your own words.

term

numerator

denominator

Write one sentence using each word.
term
1.

numerator
1.

denominator
1.

Circle the terms.
3:4 5 to 6 6/9 ratio of 8 to 10
Circle the numerators.
3:4 5 to 6 6/9 ratio of 8 to 10
Circle the denominators.
3:4 5 to 6 6/9 ratio of 8 to 10

Study the following.

Ratios are not always like fractions.

Type 1 ratios are like fractions because they represent a part of a whole, which is what a fraction is.

Example: 16 girls in the class out of 30 students.

Ratio: 16/30 Fraction: 16/30

The other fractions look like fractions, but are not equal parts of a whole.

Example: Ratio: $\frac{16 \text{ girls}}{14 \text{ boys}}$ Not a fraction since 14 boys are not the whole that is divided into equal parts.

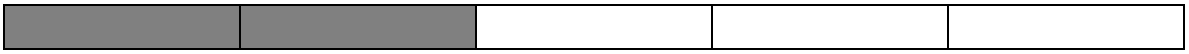
Circle the ratios that are like fractions.

$\frac{3 \text{math books}}{5 \text{ total books}}$	$\frac{4 \text{ cats}}{7 \text{ dogs}}$	$\frac{6 \text{ computers}}{7 \text{ printers}}$	$\frac{4 \text{ oranges}}{5 \text{ all the fruit}}$

Study the following.

A ratio that is a fraction, can be drawn and shaded like a fraction.

Example: 2 cats/5 total animals



Draw and shade the following fraction type ratios.

1. 3 to 4

2. 7 : 8

3. 2 / 3

4. 1:6

5. 1 to 2

Study the following.

The units for the numerator and the denominator of a ratio can be the same or different.

Examples: $\frac{\text{6 pounds}}{\text{7 pounds}}$ $\frac{\text{9 inches}}{\text{7 minutes}}$

Write two examples of ratios with the same units.

Write two examples of ratios with different units.

Study the following.

All ratios can be reduced like fractions.

Example: 12 girls: 14 boys

or $\frac{12}{14}$ which reduces $\frac{12 \div 2}{14 \div 2} = \frac{6}{7}$

so the new ratio is 6 girls : 7 boys

Reduce the following ratios.

20 red to 30 blue

18 squares : 27 circles

6 cups
8 minutes

Study the following.

If you reduce and get a 1 in the denominator, you leave it as a one, since a ratio must have 2 numbers.

Examples: 6/3 dogs to cats reduces to 2/1 dogs to cats

40 : 20 books to notebooks reduces to 2:1 books to notebooks

Reduce the following ratios.

1. 12 to 4
2. 15 : 3
3. 4 to 8
4. 12 to 6
5. 9:3
6. 20/5

Study the following.

Answers can be written many different ways. The units of measure can come after each part of the ratio, or all at the end of the ratio.

Example: 30 miles traveled to 2 gallons of gas

reduces to 15 miles traveled to 1 gallon of gas

This can be written: 15 miles : 1 gallon of gas
15 miles to 1 gallon of gas

$$\frac{15 \text{ miles}}{1 \text{ gallon of gas}}$$

15:1 miles to gallons of gas
15 to 1 miles to gallons of gas
15/1 miles to gallons of gas

Write the following ratios 6 different ways.

1. 3 red to 4 blue

2. 8 sticks to 3 logs

Write the following as a ratio.
Reduce if possible.
Include the units of measure in your answer.

1. 30 miles traveled to 2 gallons of gas

2. 10 candy bars sold in 6 days

3. 3 blocks walked in 5 minutes

4. 18 shirts ironed out of 30 shirts total

5. 3 math books to 6 science books

6. 4 baseballs to 5 footballs

7. 3 sodas to 4 slices of pizza

8. 6 plants in the living room to 4 plants in the kitchen

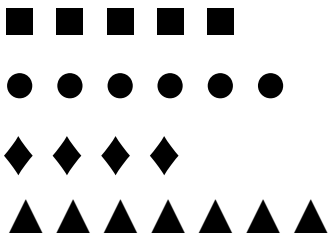
9. 4 coats Sue owns to 2 coats Sally owns

10. 25 math problems Jack finished to 30 assigned problems

11. 8 blue to 24 green

12. 6 babies compared to 3 children

Write each ratio.
Reduce if possible. (You don't need to write the unit of measure.)



1. triangles to diamonds

2. circles to squares

3. squares to circles and triangles

4. diamonds to total shapes

5. total shapes to circles

6. squares and circles to diamonds and triangles

AAA
BBBB
CCCCCC

7. A's to B's

8. C's to B's

9. C's to A's

10. A's to total Letters

11. C's to A's and B's together

12. total letters to B's