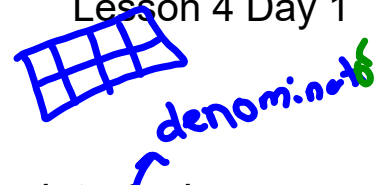Warm up Grade 6

Date: **Jan. 15**

Chapter 5

Lesson 4 Day 1

denominator

1) Joe makes a pan of brownies and cuts them into 8 pieces.
He sells 5 $\frac{1}{4}$ pans of brownies. How many brownies did he sell?

$$5\frac{1}{4} = 5\frac{2}{8}$$

×2

42 pieces

(5×8) + 2
40 + 2
42

2) Which is greater?

$$3\frac{5}{8} \quad > \quad \frac{43}{12}$$

Mixed

$3\frac{5}{8} = \frac{29}{8}$ $\frac{43}{12}$

Improper

×3
$\frac{29}{8} = \frac{87}{24}$ > $\frac{43}{12} = \frac{86}{24}$
×3   ×2

Need C.D. is 24
(got by listing multiples)

$3\frac{5}{8}$ $\frac{43}{12}$

$3\frac{5}{8}$ $3\frac{7}{12}$

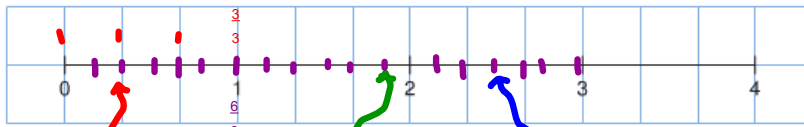Compare fraction with (C.D)

×3
$\frac{5}{8} = \frac{15}{24}$ $\frac{7}{12} = \frac{14}{24}$
×3   ×2

There was no HW last night

5. Use 1-cm grid paper.
   Draw a number line with the benchmarks 0, 1, 2, 3, and 4 as shown below.

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Place these numbers on the number line:

$\frac{5}{2}$, $\frac{2}{3}$, $1\frac{5}{6}$

$\frac{5}{2} = \frac{15}{6}$

6. For each pair of numbers below:
   • Place the two numbers on a number line.
     Which strategy did you use?
   • Which of the two numbers is greater?
     How do you know?

a) $\frac{5}{8}$, $\frac{7}{16}$ b) $\frac{3}{4}$, $\frac{9}{12}$ c) $2\frac{1}{2}$, $\frac{9}{2}$

d) $\frac{13}{10}$, $1\frac{1}{5}$ e) $\frac{29}{5}$, $6\frac{2}{10}$ f) $3\frac{5}{6}$, $3\frac{8}{12}$

a) $\frac{5}{8} = \frac{10}{16} > \frac{7}{16}$

b) $\frac{3}{4} = \frac{9}{12} = \frac{9}{16}$

c) $2 \frac{1}{2} = \frac{5}{2} < \frac{9}{2}$

d) $\frac{13}{10} > 1\frac{1}{5}$ $\frac{6}{5} = \frac{12}{10}$

e) $\frac{29}{5}$ $6\frac{2}{10}$ $\frac{63}{10}$ $\frac{58}{10} < \frac{63}{10}$

f) $3\frac{5}{6}$, $3\frac{8}{12}$ $\frac{23}{6}$ $\frac{56}{12}$ $\frac{46}{12} < \frac{56}{12}$

7. Place the numbers in each set on a number line.
   Show how you did it.
   List the numbers from least to greatest.

a) $\frac{5}{6}$, $\frac{15}{9}$, $1\frac{5}{12}$ b) $\frac{9}{4}$, $2\frac{2}{3}$, $\frac{11}{6}$ c) $\frac{9}{10}$, $\frac{7}{5}$, $\frac{11}{4}$ d) $\frac{10}{3}$, $2\frac{1}{4}$, $\frac{3}{2}$

$\frac{5}{6}$ $\frac{15}{9}$ $\frac{17}{12}$

$\frac{5 \times 6}{6 \times 6}$ $\frac{15 \times 4}{9 \times 4}$ $\frac{17 \times 3}{12 \times 3}$

$\frac{30}{36}$ $\frac{60}{36}$ $\frac{51}{36}$

Order

$\frac{5}{6}$ $1\frac{5}{12}$ $\frac{15}{9}$

$\frac{10}{3}$

$\frac{9}{4} = \frac{27}{12}$

$\frac{10}{3} = \frac{40}{12}$

$\frac{11}{6} = \frac{22}{12}$

$\frac{11}{6}$, $\frac{9}{4}$, $2\frac{2}{3}$

8. Hisa says that $\frac{17}{3}$ is greater than $5\frac{3}{4}$. Is she correct?
   Use pictures, numbers, and words to explain.

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$$\frac{17}{3} = 5\frac{2}{3} \quad < \quad 5\frac{3}{4}$$

1/3 from being whole   1/4 from being whole

1/3 is a bigger gap than 1/4 from being whole

or

$$5\frac{2}{3} = 5\frac{8}{12} \qquad 5\frac{3}{4} = 5\frac{9}{12}$$

$$5\frac{8}{12} \quad < \quad 5\frac{9}{12}$$

9. Adriel watched a $1\frac{3}{4}$-h movie on TV.
   Nadir watched 3 half-hour sitcoms.
   Who watched more TV? How do you know?

Nadir
$$\frac{3}{2} = 1\frac{1}{2} = 1\frac{2}{4} \quad < \quad 1\frac{3}{4}$$

Adriel watched more

10. Justine played a board game for $3\frac{1}{2}$ h. ⟶
    Marty played the same board game for $\frac{37}{12}$ h.
    Who played longer?
    Sketch a number line to show how you know you are correct.

$$3\frac{1}{2} = \frac{7}{2} = \frac{42}{12} \text{ hr}$$
$$3\frac{6}{12} \text{ hr}$$

$$\frac{37}{12} = 3\frac{1}{12}\text{hr}$$

Justine played longer

11. Ratu, Addie, and Penny cooked pancakes
    for their school's maple syrup festival
    in McCreary, Manitoba.
    Ratu made $4\frac{1}{2}$ dozen pancakes,
    Addie made $\frac{28}{6}$ dozen pancakes,
    and Penny made $\frac{13}{3}$ dozen pancakes.
    Who made the most pancakes?
    Who made the least?
    Sketch a number line to show how you know.

$$R \; 4\frac{1}{2} = 4\frac{3}{6}$$

$$A \; \frac{28}{6} = 4\frac{4}{6} \leftarrow \text{Most}$$

Addie made the most

$$P \; \frac{13}{3} = 4\frac{1}{3} = 4\frac{2}{6}$$

12. Florence and her friends Rafael and Bruno race
    model cars.
    Florence's car completed $2\frac{1}{4}$ laps of a track in 1 min.
    Rafael's car completed $\frac{8}{3}$ laps of the track in 1 min.
    Bruno's car completed $\frac{11}{12}$ laps of the track in 1 min.
    Whose car was fastest? How do you know?

13. Use your ruler as a number line.
    Visualize placing these fractions on your ruler: $4\frac{3}{5}, \frac{11}{2}, \frac{83}{10}$
    Describe where you would place each fraction.
    Which fraction is the greatest? The least?

Ratio is comparing 2 or more quantities with the same unit

Example) Comparing the number of boys in the class to the number of girls in the class

(Both are students)

There are three forms in which you can write a ratio
   1) using a colon, 4 : 7
   2) using the word "to", 4 to 7
   3) as a fraction, $\frac{4}{7}$ fraction is only used if you compare to whole

In each case, it is read as 4 to 7. A ratio does not mean much if you do not know what you are comparing. Therefore, it is always **important to state above the ratio what you are comparing:**
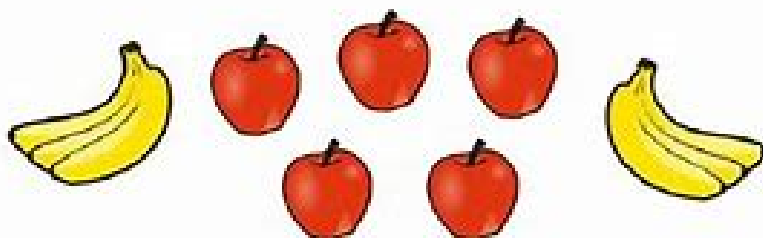   **boys to girls**

   11 : 10   **4 to 7**

★Study

Also, **order is very important with ratios****. The ratio boys to girls is not the same as the ratio of girls to boys, because they are not in the same order.**

Determining Ratios - Example

What is the Ratio of Apples to Bananas ?

There are __5__ apples and __6__ bananas, so the ratio is

Apples : Bananas
. 5 : 6

Apples to Bananas
5 to 6

Write it using the 2 ways

Reminder

You always write down what you are comparing since order matters.

You can have a two term or three term ratio.

A **part to part ratio** is comparing one part of a collection to another part, for example boys to girls. **A part to part ratio can not be written as a fraction.**

A **part to whole ratio** is comparing one part of the collection to the whole collection, such as boys to all students.

Three term Ratio is comparing 3 quantities with the same unit to each other

Ex)
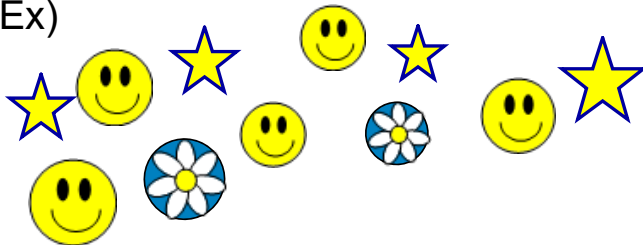
Smiley:stars:flower

$\underline{5} : \underline{4} : \underline{2}$

Whole would have 11 pieces

Ex) part to <u>Whole</u>

smiley : whole

5 : 11

You try

#1) Write a part-to-part ratio for the following picture. (Make sure to write what you are comparing)

Dogs: Cats
4 : 2

Cat : Dogs
2 : 4

#2) Write a part-whole for the above picture (2 possible solutions)

Dogs : whole
4 : 6

OR

Cats : whole
2 : 6

Two-Term Ratio

1. part-to-whole ratio
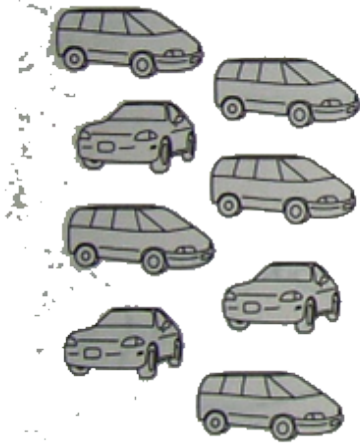
Basketball : whole

7 : 20

2. part-to-part ratio

Basket : Golf

7 : 5

Three-Term Ratio

Basket : Tennis : Golf

7 : 8 : 5

Write each part-to-part ratio.

a) cars **to vans**

b) footballs to baseballs

c) bananas to fruit

whole

C : V
3 : 5

C to V
3 to 5

F : B
7 : 6

F to B
7 to 6

Ban : Fruit
5 : 9

5 to 9

$\dfrac{5}{9}$

Class / Homework

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#1) #2) #9
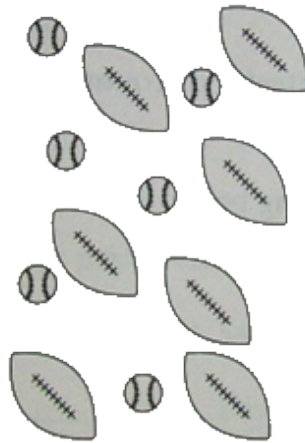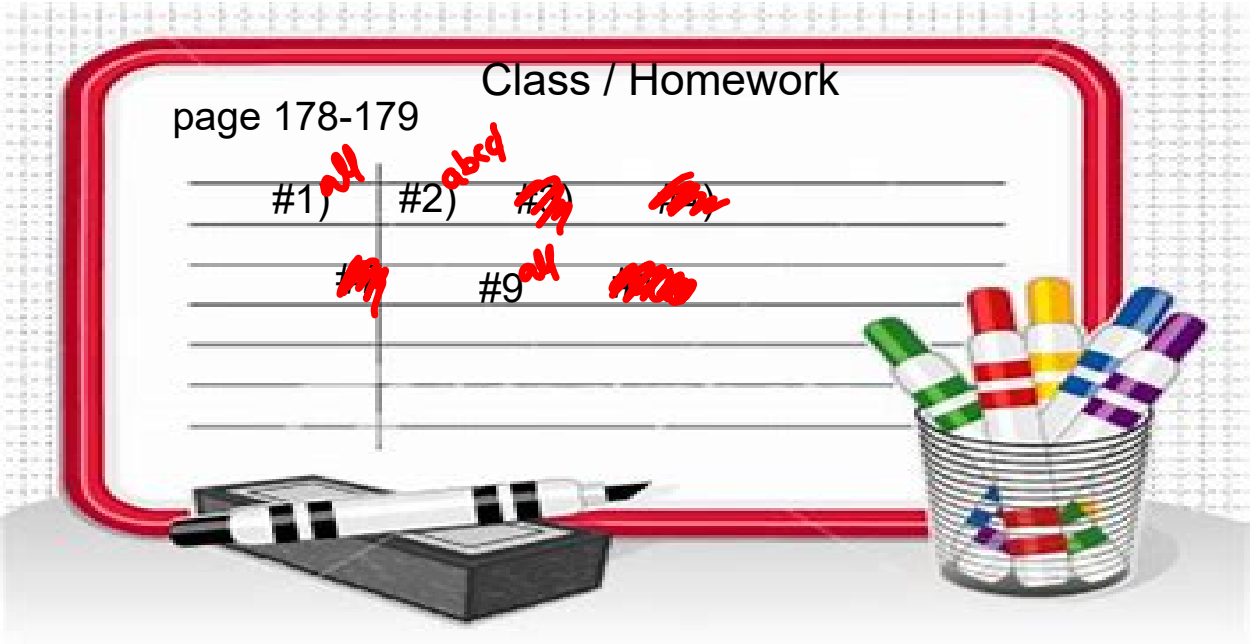
Number lines PDF

Practice

1. Write each ratio 2 ways.
   a) apples to pears

   b) caps to scarves

   c) roses to daisies

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

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

4. Ms. Zsabo has 13 girls and 11 boys in her class.
   Write each ratio.
   a) girls to boys   b) boys to girls
   c) boys to students   d) girls to students
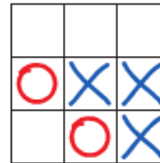
5. What is being compared in each ratio?
   a) 3:4
   b) $\frac{4}{7}$
   c) 3 to 7
   d) 4:3

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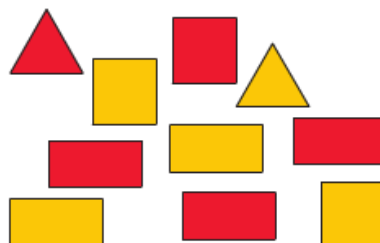   Draw diagrams to record your work.
   Explain each diagram.

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

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
   b) squares to rectangles
   c) triangles to all shapes
   d) red shapes to yellow shapes
   e) yellow triangles to yellow rectangles
   f) red triangles to yellow squares

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

TRAIL MIX
1 scoop raisins
3 scoops nuts
2 scoops dried papaya
1 scoop sunflower seeds

SUN-DRIED RAISINS

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