

Warm Up (Review of Grade 7)

Jan. 8



1) Write each fraction as a decimal (without calculator)

$$a) \frac{7}{5} \xrightarrow{\times 2} \frac{14}{10} = \frac{14}{10} = 1.4$$

$$b) \frac{2}{25} \xrightarrow{\times 4} \frac{8}{100} = 0.08$$

2) Write the following decimals as a fraction

a) 0.056

$$\frac{56}{1000}$$

b) $0.\overline{78}$

$$\frac{78}{99}$$

c) $0.\overline{2}$

$$\frac{2}{9}$$

d) $0.\overline{006}$

$$\frac{6}{999}$$

Always put
in lowest terms

$$\frac{56}{1000} \div 8 = \frac{7}{125}$$

Comparing and Ordering Fractions

There are several strategies you can use to compare fractions.

1. Use common denominators Ex) $\frac{1}{2}$ $\frac{3}{2}$

With common denominators, the fraction with the larger numerator is greater

2. Use common numerators Ex) $\frac{3}{4}$ $\frac{3}{7}$

When fractions have the same numerators, the fraction with the smaller denominator is greater because it has bigger pieces.

3. Use benchmarks (0, $\frac{1}{2}$, 1)



4. Use one in the difference of the numerator and denominator

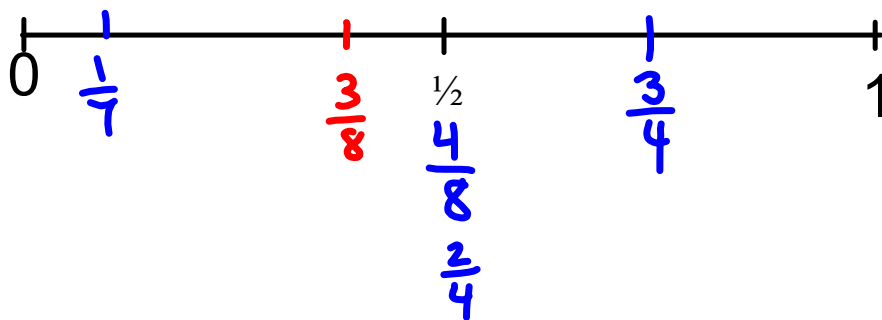
$$\frac{3}{4} \quad \frac{6}{7}$$

With one in the difference of numerator and denominator, the bigger the number the larger the fraction.

5. Use a combination of the above

How to Use Benchmarks 0, $\frac{1}{2}$, 1

Compare $\frac{3}{4}$, $\frac{1}{7}$, $\frac{3}{8}$



$\frac{3}{4}$ is closer to 1 because the numerator and denominator are close in value

$\frac{1}{7}$ is closer to 0 because the numerator is much less than the denominator

$\frac{3}{8}$ is closer to $\frac{1}{2}$ because the numerator is about half the denominator but less than $\frac{1}{2}$

For each example order the fractions from least to greatest.

Use more than one strategy

1. $\frac{5}{5}, \frac{1}{5}, \frac{4}{5}, \frac{2}{5}, \frac{3}{5}$
 Common denominators

$\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}$

2. $\frac{2}{3}, \frac{2}{8}, \frac{2}{4}, \frac{2}{6}, \frac{2}{10}$

$\frac{2}{10}, \frac{2}{8}, \frac{2}{6}, \frac{2}{4}, \frac{2}{3}$

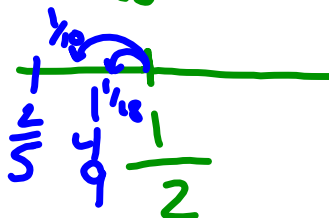
3. $\frac{3}{16}, \frac{9}{14}, \frac{1}{14}, \frac{8}{9}, \frac{5}{12}, \frac{4}{7}$
 Annotations:
 - $\frac{3}{16}$: little over half
 - $\frac{9}{14}$: close to zero
 - $\frac{1}{14}$: close to one
 - $\frac{8}{9}$: close to one
 - $\frac{5}{12}$: smaller close to $\frac{1}{2}$
 - $\frac{4}{7}$: little over half
 Calculation: $\frac{4}{7} = \frac{3.5}{7} = \frac{0.5}{1}$
 Order: $\frac{1}{14}, \frac{5}{12}, \frac{4}{7}, \frac{9}{16}, \frac{8}{9}$

4. $\frac{7}{8}, \frac{1}{2}, \frac{4}{5}, \frac{2}{3}, \frac{9}{10}$
 Annotations:
 - $\frac{1}{2}$: one in difference
 - $\frac{4}{5}$: one in difference

$\frac{1}{2}, \frac{2}{3}, \frac{4}{5}, \frac{7}{8}, \frac{9}{10}$

5. $\frac{4}{5}, \frac{5}{8}, \frac{4}{9}, \frac{7}{8}, \frac{2}{5}$
 Annotations:
 - $\frac{2.5}{5}$ off $\frac{0.5}{6} = \frac{1}{10}$ smaller than $\frac{1}{2}$
 - combination
 - smaller than $\frac{1}{2}$

$\frac{4.5}{9} = \frac{0.5}{9}$ smaller = $\frac{1}{18}$ smaller



Comparing and Ordering Fractions

There are several strategies you can use to compare fractions.

1. Use common denominators
2. Use common numerators
3. Use benchmarks (0, $\frac{1}{2}$, 1)
4. Use fractions with a difference of 1 between the numerator and denominator
5. Use a combination of the above

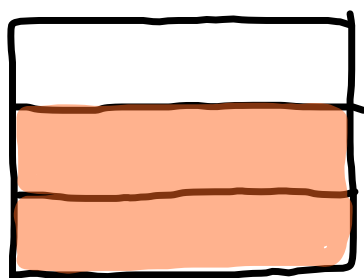
Least \rightarrow Greatest

Examples; 1. $\frac{5}{5}$, $\frac{1}{5}$, $\frac{4}{5}$, $\frac{2}{5}$, $\frac{3}{5}$

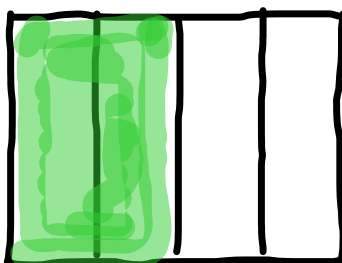
$\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{5}{5}$



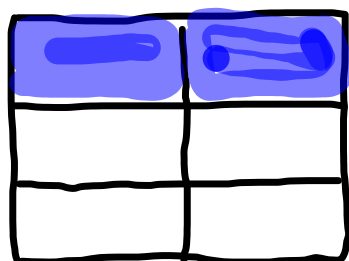
$$\frac{2}{3}, \frac{2}{8}, \frac{2}{4}, \frac{2}{6}, \frac{2}{10}$$



$$\frac{2}{3}$$



$$\frac{2}{4}$$

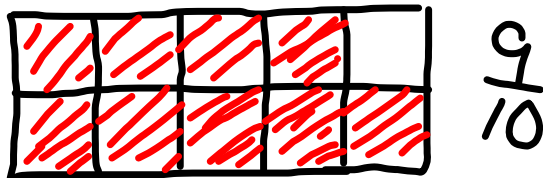
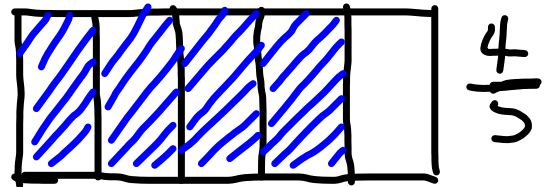
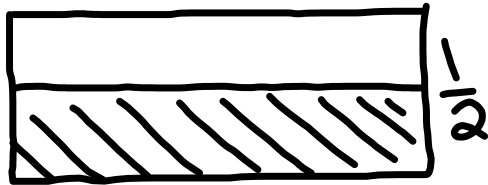


$$\frac{2}{6}$$



Least \rightarrow Greatest
 $\frac{2}{10}, \frac{2}{8}, \frac{2}{6}, \frac{2}{4}, \frac{2}{3}$

$$4 > \frac{7}{8}, \frac{1}{2}, \frac{4}{5}, \frac{2}{3}, \frac{9}{10}$$



In fractions the larger the denominator, the smaller the size of the pieces you will have. So if you are only missing one piece, (or your numerator is one less than the denominator), the fraction with the bigger denominator will be greater.

$$\frac{1}{2}, \frac{2}{3}, \frac{4}{5}, \frac{7}{8}, \frac{9}{10}$$

$$5. \frac{4}{5}, \frac{5}{8}, \frac{4}{9}, \frac{7}{8}, \frac{2}{5}$$

Least to Greatest

$\frac{4}{5}$ - almost 1
 $\frac{7}{8}$ - almost 1
 $\frac{4}{9}$ - almost $\frac{1}{2}$
 $\frac{5}{8}$ - little more than $\frac{1}{2}$
 $\frac{2}{5}$ → less than $\frac{1}{2}$

$\frac{7}{8}$ is greater. missing a smaller piece

$$\frac{4}{9}, \frac{2}{5} \rightarrow \frac{4}{10}$$

→ greater has bigger pieces

$$\frac{2}{5}, \frac{4}{9}, \frac{5}{8}, \frac{4}{5}, \frac{7}{8}$$

Which fraction in each pair is greater?

Give one or more reasons. Try not to use drawings or models. DO NOT USE common denominators. Use the strategies we just discussed.

a. $\frac{4}{5}$ or $\frac{4}{9}$ *Common Numerator* g. $\frac{7}{12}$ or $\frac{5}{12}$

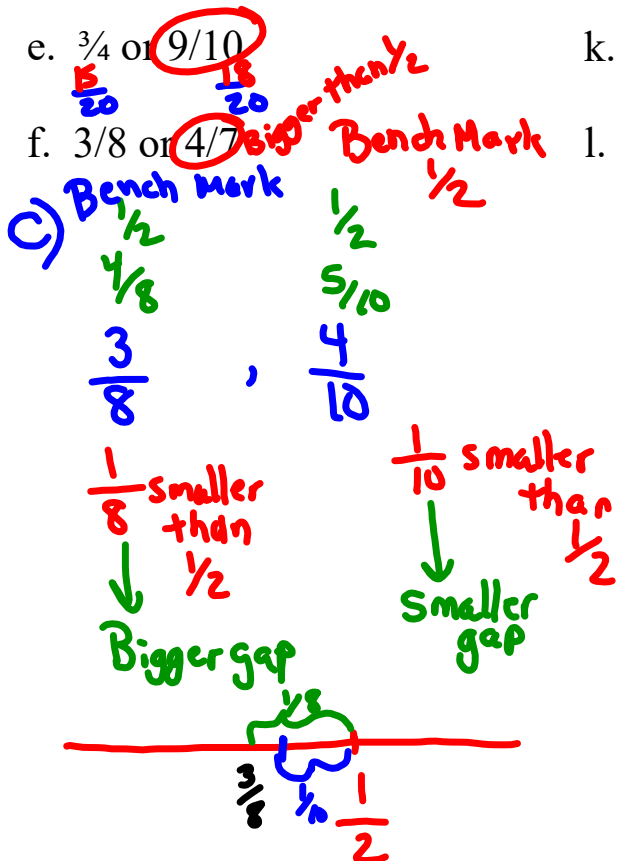
b. $\frac{4}{7}$ or $\frac{5}{7}$ *Common Denom* h. $\frac{3}{5}$ or $\frac{3}{7}$

c. $\frac{3}{8}$ or $\frac{4}{10}$ i. $\frac{5}{8}$ or $\frac{6}{10}$

d. $\frac{5}{3}$ or $\frac{5}{8}$ j. $\frac{9}{8}$ or $\frac{4}{3}$

e. $\frac{3}{4}$ or $\frac{9}{10}$ k. $\frac{4}{6}$ or $\frac{7}{12}$

f. $\frac{3}{8}$ or $\frac{4}{7}$ l. $\frac{8}{9}$ or $\frac{7}{8}$



$$\frac{2}{3} > \frac{3}{7} \quad \text{LCM}$$

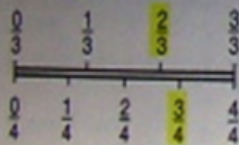
Multiples of 3 \rightarrow 3, 6, 9, 12, 15, 18, 21, 24, 27, ...
Multiples of 7 \rightarrow 7, 14, 21, 28, ...

LCM 3 and 7 is 21

$$\frac{2 \times 7}{3 \times 7} = \frac{14}{21} > \frac{3 \times 3}{7 \times 3} = \frac{9}{21}$$

Lisette and Kim are the same height.
 Lisette can jump $\frac{2}{3}$ of her height and
 Kim, $\frac{3}{4}$ of her height. Who can jump higher?

Number lines can be used to compare $\frac{2}{3}$ and $\frac{3}{4}$.



$\frac{3}{4}$ is to the right of $\frac{2}{3}$. $\frac{3}{4} > \frac{2}{3}$



Fractions can also be compared if they have the same denominator.

For $\frac{3}{4}$ and $\frac{2}{3}$, the LCM of the denominators is 12.

The LCM is used to write equivalent fractions.

$\frac{9}{12} > \frac{8}{12}$, therefore $\frac{3}{4} > \frac{2}{3}$.

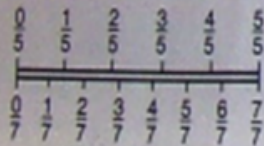
$$\frac{3}{4} \xrightarrow{\times 3} \frac{9}{12}$$

$$\frac{2}{3} \xrightarrow{\times 4} \frac{8}{12}$$

Kim can jump higher.

You Try

1. Which is greater, $\frac{4}{5}$ or $\frac{5}{7}$?



2. Find the LCM of the denominators (the least common denominator).

- a. $\frac{2}{3}, \frac{1}{7}$
- b. $\frac{2}{5}, \frac{1}{2}$
- c. $\frac{1}{9}, \frac{1}{6}$
- d. $\frac{3}{4}, \frac{5}{8}$

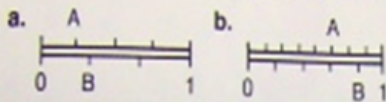
3. Copy and use $>$ or $<$ to make a true statement.

- a. $\frac{3}{5} \odot \frac{2}{5}$
- b. $\frac{7}{10} \odot \frac{9}{10}$
- c. $\frac{1}{5} \odot \frac{3}{10}$
- d. $\frac{5}{8} \odot \frac{3}{4}$
- e. $\frac{1}{4} \odot \frac{1}{3}$
- f. $\frac{3}{4} \odot \frac{7}{10}$

4. Arrange from least to greatest.

- a. $\frac{3}{10}, \frac{1}{10}, \frac{9}{10}, \frac{7}{10}$
- b. $\frac{7}{9}, \frac{18}{18}, \frac{4}{9}, \frac{11}{18}, \frac{1}{18}$
- c. $\frac{1}{4}, \frac{2}{3}, \frac{1}{12}$
- d. $\frac{2}{3}, \frac{3}{4}, \frac{1}{2}, \frac{5}{6}$
- e. $\frac{11}{10}, \frac{6}{5}, \frac{9}{8}$

1. What fractions do A and B represent?

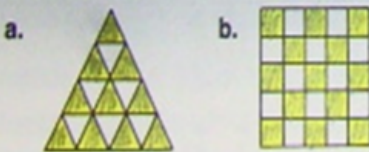


2. Which is the lesser fraction in each part of exercise 1?

3. Which is the greater fraction?

- a. $\frac{4}{12}, \frac{5}{12}$ b. $\frac{3}{4}, \frac{5}{8}$ c. $\frac{12}{5}, \frac{9}{4}$
 d. $\frac{7}{8}, \frac{3}{4}$ e. $\frac{15}{10}, \frac{15}{8}$ f. $\frac{2}{3}, \frac{7}{10}$

4. Which figure has the greater fraction of its area shaded?



5. Renata and Bonnie have the same mass. Renata can lift $\frac{4}{5}$ of her mass. Bonnie can lift $\frac{3}{4}$ of her mass. Who can lift the greater mass?

6. Find the LCM of the denominators.

- a. $\frac{1}{2}, \frac{4}{5}, \frac{9}{10}$ b. $\frac{7}{8}, \frac{1}{3}, \frac{5}{4}$ c. $\frac{7}{6}, \frac{3}{8}, \frac{5}{3}$

7. Which is the least fraction?

- a. $\frac{2}{3}, \frac{5}{6}, \frac{3}{4}$ b. $\frac{7}{8}, \frac{4}{5}, \frac{9}{10}$ c. $\frac{7}{4}, \frac{11}{7}, \frac{3}{2}$

8. Arrange from least to greatest.

- a. $\frac{3}{4}, \frac{8}{4}, \frac{5}{4}$ b. $\frac{1}{3}, \frac{2}{5}, \frac{1}{10}$
 c. $\frac{8}{5}, \frac{9}{5}, \frac{5}{5}$ d. $\frac{9}{4}, \frac{7}{2}, 2$

9. Of the 30 students in Mrs. Paolucci's class, 3 were absent. On the same day, 2 students were absent from Mr. Clark's class of 25. Which class had the greater fraction of students present?

10. A construction company is building Phase II of a housing development. Of the 30 homes in Phase I, 11 have three bedrooms. In Phase II, 17 of the 45 homes have three bedrooms. Which phase has the greater fraction of three-bedroom homes?

11. While playing golf, Neil lost 3 of his 10 golf balls. Gabrielle lost 6 of her 15 golf balls. Which player lost the lesser fraction of golf balls?

12. The Yost family spent \$72 of their \$264 weekly income on food. The Seymours spent \$93 of their \$330 weekly income on food.

- a. How much did each family spend on food in a year?
 b. Which family spent the greater fraction of their income on food?