Compare Fractions

Name: _____

Prerequisite: Model Comparing Fractions

Study the example problem showing ways to compare fractions. Then solve problems 1–9.

Example

Sandy ran $\frac{3}{10}$ of a mile during gym class. Alicia ran $\frac{1}{10}$ of a mile, and Rosa ran $\frac{3}{8}$ of a mile. Compare the distance Sandy ran to the distances Alicia and Rosa ran.

Sandy

Alicia

$\frac{3}{10}$ and $\frac{1}{10}$ have the same denominator.

$$\frac{3}{10} > \frac{1}{10}$$

Sandy

Rosa

$\frac{3}{10}$ and $\frac{3}{8}$ have the same numerator.

$$\frac{3}{10} < \frac{3}{8}$$

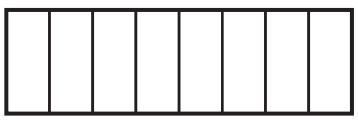
Sandy ran a greater distance than Alicia and a lesser distance than Rosa.

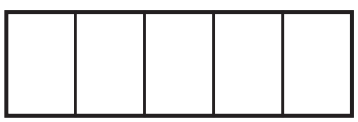
1 Look at the example problem above. Write each comparison in words. Use *greater than* and *less than*.

$\frac{3}{10} > \frac{1}{10}$ Three tenths is _____ one tenth.

$\frac{3}{10} < \frac{3}{8}$ Three tenths is _____ three eighths.

2 Shade the models to show $\frac{2}{8}$ and $\frac{2}{5}$. Then write $<$, $>$, or $=$ to compare the fractions.

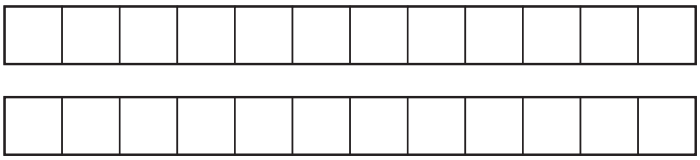




$\frac{2}{5}$ ___ $\frac{2}{8}$

Solve.

3 Shade the models to show $\frac{5}{12}$ and $\frac{7}{12}$.



4 Compare $\frac{5}{12}$ and $\frac{7}{12}$ using symbols and words.

$\frac{5}{12}$ ___ $\frac{7}{12}$

Five twelfths is _____ seven twelfths.

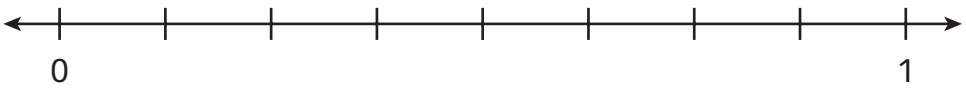
5 Explain how you used the models in problem 3 to show how the two fractions compare in problem 4.

_____

_____

_____

6 Label $\frac{7}{8}$ on the number line below.



7 Label $\frac{7}{12}$ on the number line below.

8 Compare $\frac{7}{8}$ and $\frac{7}{12}$ using symbols and words.

$\frac{7}{8}$ ___ $\frac{7}{12}$

Seven _____ is _____ seven twelfths.

9 Explain how you used the number lines in problems 6 and 7 to show how the two fractions compare in problem 8.

_____

_____

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Find a Common Numerator or Denominator

Study the example problem showing how to compare fractions by finding a common denominator. Then solve problems 1–7.

Example

A length of ribbon is $\frac{3}{4}$ foot. Another length of ribbon is $\frac{5}{6}$ foot. Compare the lengths using a symbol.

Find a common denominator. $\frac{3 \times 3}{4 \times 3} = \frac{9}{\mathbf{12}}$ $\frac{5 \times 2}{6 \times 2} = \frac{10}{\mathbf{12}}$

Write the equivalent fractions. $\frac{3}{4} = \frac{9}{12}$ $\frac{5}{6} = \frac{10}{12}$

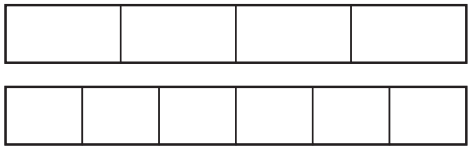
Compare the numerators. $\frac{\mathbf{9}}{12} < \frac{\mathbf{10}}{12}$

$9 < 10$ so $\frac{9}{12} < \frac{10}{12}$

$\frac{3}{4} < \frac{5}{6}$

1 Shade the models below to show $\frac{3}{4}$ and $\frac{5}{6}$.

Fill in the blank to show the comparison. $\frac{3}{4}$ ___ $\frac{5}{6}$



2 Divide each model in problem 1 into 12 equal parts to show an equivalent fraction. Write the equivalent fractions and symbol to show the comparison.

$\frac{\square}{12}$ ___ $\frac{\square}{12}$

3 Compare $\frac{2}{3}$ and $\frac{9}{12}$ by finding a common denominator.

a. Write a fraction equivalent to $\frac{2}{3}$ with a denominator of 12. $\frac{2 \times \square}{3 \times \square} = \frac{\square}{12}$

b. Compare the fractions. $\frac{\square}{12}$ ___ $\frac{9}{12}$. So, $\frac{2}{3}$ ___ $\frac{9}{12}$.

Vocabulary

denominator the number below the line in a fraction. It tells how many equal parts are in the whole.

$\frac{3}{4}$

4 equal parts

numerator the number above the line in a fraction. It tells how many equal parts are described.

$\frac{3}{4}$

3 parts described

Solve.

4 Compare $\frac{1}{5}$ and $\frac{2}{12}$ by finding a common numerator.

a. Write a fraction equivalent to $\frac{1}{5}$ with a numerator of 2. $\frac{1 \times \square}{5 \times \square} = \frac{2}{\square}$

b. Compare the fractions. $\frac{2}{\square}$ ___ $\frac{2}{12}$. So, $\frac{1}{5}$ ___ $\frac{2}{12}$.

5 Compare the fractions. Use the symbols $<$, $>$, and $=$.

a. $\frac{2}{5}$ ___ $\frac{8}{10}$

b. $\frac{5}{12}$ ___ $\frac{1}{3}$

c. $\frac{3}{5}$ ___ $\frac{60}{100}$

d. $\frac{9}{100}$ ___ $\frac{9}{10}$

6 Tell whether each sentence is *True* or *False*.

a. $\frac{2}{3} > \frac{5}{6}$ ☐ True ☐ False

b. $\frac{4}{10} < \frac{4}{5}$ ☐ True ☐ False

c. $\frac{70}{100} = \frac{7}{10}$ ☐ True ☐ False

d. $\frac{1}{3} > \frac{3}{1}$ ☐ True ☐ False

e. $\frac{3}{4} < \frac{2}{3}$ ☐ True ☐ False

7 Can two fractions with the same numerator and different denominators be equal? Use words and numbers to explain.

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Use a Benchmark to Compare Fractions

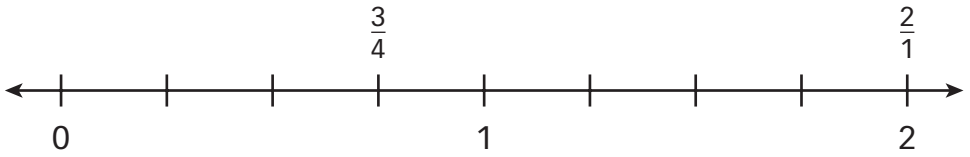
Study the example problem using 1 as a benchmark to compare fractions. Then solve problems 1–4.

Example

Carol compared $\frac{3}{4}$ and $\frac{2}{1}$. She says $\frac{3}{4} > \frac{2}{1}$ because both the numerator and the denominator in $\frac{3}{4}$ are greater than the numerator and denominator in $\frac{2}{1}$.

$3 > 2$ and $4 > 1$. Is Carol correct?

Compare each fraction to the benchmark 1.

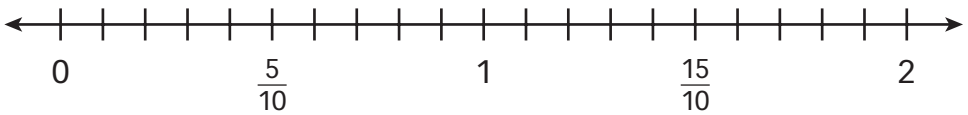


$\frac{3}{4} < 1$ and $\frac{2}{1} > 1$.

$\frac{3}{4} < \frac{2}{1}$ and $\frac{2}{1} > \frac{3}{4}$. Carol is not correct.

1 Compare $\frac{9}{10}$ and $\frac{3}{2}$.

a. Label $\frac{9}{10}$ and $\frac{3}{2}$ on the number line below.



b. Which fraction is greater than 1? _____

c. Which fraction is less than 1? _____

d. Fill in the blank. Explain how you found your answer. $\frac{9}{10}$ ___ $\frac{3}{2}$

_____

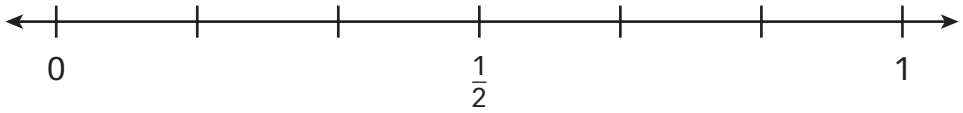
_____

_____

Solve.

2 Compare $\frac{5}{6}$ and $\frac{1}{3}$ using the benchmark fraction $\frac{1}{2}$.

a. Label $\frac{5}{6}$ and $\frac{1}{3}$ on the number line below.



b. Which fraction is greater than $\frac{1}{2}$? _____

c. Which fraction is less than $\frac{1}{2}$? _____

d. Fill in the blank. Explain how you found your answer.

$\frac{5}{6}$ ___ $\frac{1}{3}$

3 Use a benchmark fraction to compare the fractions $\frac{7}{10}$ and $\frac{5}{12}$. Explain how you found your answer.

4 Tell whether each number sentence is *True* or *False*.

Then write the benchmark you could use to compare the fractions.

				Benchmark
a.	$\frac{9}{8} > \frac{11}{12}$	☐ True	☐ False	_____
b.	$\frac{2}{5} < \frac{5}{6}$	☐ True	☐ False	_____
c.	$\frac{7}{10} < \frac{2}{4}$	☐ True	☐ False	_____
d.	$\frac{4}{5} > \frac{2}{2}$	☐ True	☐ False	_____
e.	$\frac{3}{2} < \frac{9}{10}$	☐ True	☐ False	_____

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Compare Fractions

Solve the problems.

1 Which of the following is greater than $\frac{2}{3}$?

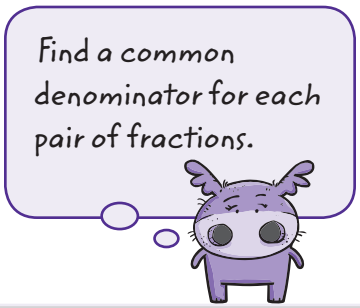
Circle all that apply.

A $\frac{3}{4}$

B $\frac{5}{6}$

C $\frac{8}{12}$

D $\frac{3}{2}$



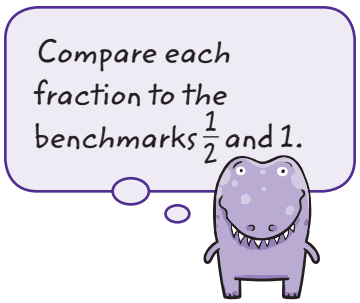
2 Harry ate $\frac{5}{8}$ of a sandwich. Sven ate $\frac{2}{5}$ of a sandwich. Micah ate $\frac{3}{4}$ of a sandwich. Gabe ate $\frac{6}{12}$ of a sandwich. Who ate the most of his sandwich?

A Harry

B Sven

C Micah

D Gabe



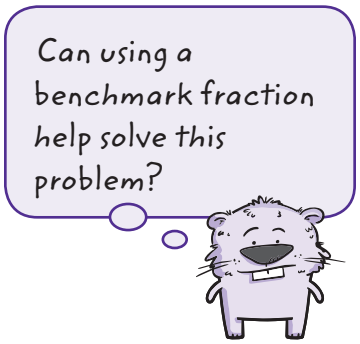
3 Erica and Matt earn the same amount of money each month. Erica saves $\frac{3}{10}$ of her earnings. Matt saves $\frac{3}{6}$ of his earnings. Which explanation correctly tells who saves more?

A Erica saves more because tenths are greater than sixths.

B Matt saves less because sixths are less than tenths.

C Erica saves more because $\frac{3}{10} < \frac{3}{6}$.

D Matt saves more because $\frac{3}{6} > \frac{3}{10}$.



Fran chose **C** as the correct answer. How did she get that answer?

_____

_____

_____

Solve.

4 Melanie read 45 pages of a 100-page book. Her younger sister read $\frac{1}{2}$ of a 10-page book. Who read a greater fraction of her book, Melanie or her sister? ***Show your work.***

One fraction has a denominator of 100; the other fraction has a denominator of 10.

Solution: _____

5 Compare $\frac{5}{4}$ and $\frac{9}{10}$. Describe two methods you could use to compare the fractions.

$\frac{5}{4}$ ___ $\frac{9}{10}$

Method A _____

_____

_____

_____

_____

Method B _____

_____

_____

_____

_____

Some ways to compare fractions are finding a common denominator, finding a common numerator, and using a benchmark.