Comparing Fractions 4

1. Compare the fractions by writing < or > in the box between them.

If the fractions have the same *kind* of pieces, you can simply compare how many pieces they have.	**a.** $\dfrac{3}{8}$ ☐ $\dfrac{7}{8}$	**b.** $\dfrac{7}{12}$ ☐ $\dfrac{6}{12}$	**c.** $\dfrac{5}{9}$ ☐ $\dfrac{7}{9}$
			d. $\dfrac{6}{6}$ ☐ $\dfrac{2}{6}$
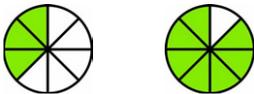
2. Compare the fractions by writing < or > in the box between them.

If the fractions have the same *amount* of pieces, you can simply compare the <u>size</u> of the pieces.	**a.** $\dfrac{3}{8}$ ☐ $\dfrac{3}{9}$	**b.** $\dfrac{1}{10}$ ☐ $\dfrac{1}{12}$	**c.** $\dfrac{5}{6}$ ☐ $\dfrac{5}{8}$
			d. $\dfrac{2}{6}$ ☐ $\dfrac{2}{5}$
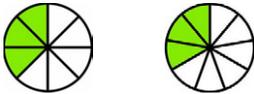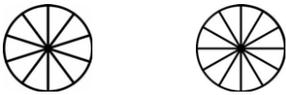
Sometimes one fraction is more than 1/2 and the other is less.

Example 1. Compare $\dfrac{5}{6}$ and $\dfrac{3}{8}$.

Now, 3/8 is less than 1/2. How can you know? Because 4/8 would be exactly 1/2, so 3/8 is less than that. And, 5/6 is more than 1/2. (How do you know?) So, 5/6 > 3/8.

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3. Write <, >, or = in the box. <u>Note:</u> Sometimes one of the fractions is actually *equal* to 1/2!

a. $\dfrac{1}{6}$ ☐ $\dfrac{3}{5}$ **b.** $\dfrac{4}{5}$ ☐ $\dfrac{2}{8}$ **c.** $\dfrac{3}{4}$ ☐ $\dfrac{2}{5}$ **d.** $\dfrac{5}{10}$ ☐ $\dfrac{4}{12}$

e. $\dfrac{4}{5}$ ☐ $\dfrac{3}{6}$ **f.** $\dfrac{1}{9}$ ☐ $\dfrac{2}{3}$ **g.** $\dfrac{3}{6}$ ☐ $\dfrac{5}{10}$ **h.** $\dfrac{4}{10}$ ☐ $\dfrac{7}{12}$

4. Write these fractions in order from the smallest to the greatest.

a. $\dfrac{6}{8}$, $\dfrac{3}{8}$, $\dfrac{3}{6}$	**b.** $\dfrac{6}{5}$, $\dfrac{2}{5}$, $\dfrac{5}{6}$	**c.** $\dfrac{1}{4}$, $\dfrac{1}{7}$, $\dfrac{5}{8}$

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Sometimes one fraction is more than 1 whole and the other is less.

Example 2. Compare $\dfrac{7}{10}$ and $\dfrac{11}{4}$. Clearly, 11 fourths is more than one since 4/4 makes one.

And, 7/10 is less than 1. So, 7/10 must also be less than 11/4.

5. Compare the fractions. (Write <, >, or = in the box.)

a. $\dfrac{8}{7}$ ☐ $\dfrac{7}{8}$ **b.** $\dfrac{9}{12}$ ☐ $\dfrac{7}{5}$ **c.** $\dfrac{3}{4}$ ☐ $\dfrac{8}{5}$ **d.** $\dfrac{11}{12}$ ☐ $\dfrac{10}{3}$

6. Compare.

a. $\dfrac{1}{7}$ ☐ $\dfrac{3}{7}$	**b.** $\dfrac{1}{2}$ ☐ $\dfrac{5}{6}$	**c.** $\dfrac{4}{5}$ ☐ $\dfrac{8}{3}$	**d.** $1\dfrac{2}{9}$ ☐ $1\dfrac{3}{5}$	**e.** $\dfrac{9}{5}$ ☐ $\dfrac{6}{6}$
f. $\dfrac{5}{12}$ ☐ $\dfrac{5}{11}$	**g.** $\dfrac{12}{8}$ ☐ $\dfrac{8}{12}$	**h.** $\dfrac{5}{5}$ ☐ $\dfrac{5}{7}$	**i.** $\dfrac{2}{3}$ ☐ $\dfrac{5}{10}$	**j.** $2\dfrac{4}{8}$ ☐ $2\dfrac{2}{7}$

Sometimes you can write an equivalent fraction, then compare.

Example 3. Compare $\dfrac{3}{5}$ and $\dfrac{7}{10}$. This time, we can write 3/5 as 6/10 since they are equivalent

fractions. Then the problem changes to comparing $\dfrac{6}{10}$ and $\dfrac{7}{10}$, and clearly 7/10 is more.

7. Compare the fractions. Write an equivalent fraction for one of the fractions.
   Hint: To make an equivalent fraction, multiply both the top and bottom number in the fraction by some same number.

Sample worksheet from
www.MathMammoth.com
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You cannot always base fraction comparisons on images.

Example 4.

$\dfrac{7}{10}$

$\dfrac{5}{8}$
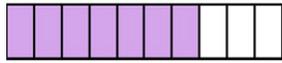
It *looks like* 7/10 is the same length as 5/8, but the fraction bars themselves are not the same size. So, we cannot say that 7/10 = 5/8!
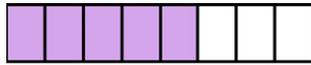
When comparing fraction images, the wholes that the fractions are part of need to be equal in size.

8. Can you compare the fractions based on the images? If yes, write <, >, or = . If not, state that.

a.

$\dfrac{7}{12}$ $\dfrac{6}{9}$

b.

$\dfrac{3}{9}$ $\dfrac{2}{6}$

c.

$\dfrac{7}{10}$ $\dfrac{5}{8}$

d.

$\dfrac{5}{6}$ $\dfrac{7}{9}$

e.

$\dfrac{7}{8}$ $\dfrac{5}{6}$

f.

$\dfrac{2}{3}$ $\dfrac{7}{9}$

9. Arrange these fractions in order from the smallest to the greatest. Use the number lines to help.

$$\dfrac{5}{8}, \quad \dfrac{1}{3}, \quad \dfrac{2}{5}, \quad \dfrac{3}{8}, \quad \dfrac{2}{3}$$
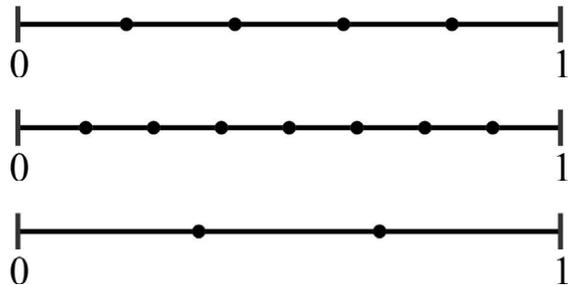
10. Draw a picture to show that 1/3 < 1/2. You can use lines, bars, circles, or other shapes.

11. One number line here is divided into fifths. Divide the other into sixths, and then use the number lines to show that 5/6 > 3/5.

Hint: First divide the number line into two halves. Then, divide each half into three parts.
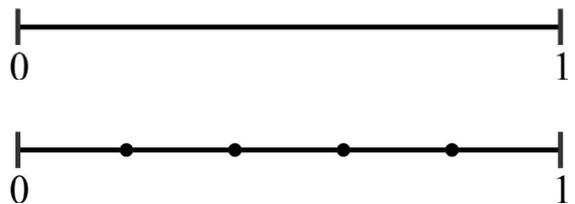
12. Angie ate 3/8 of a pizza, and Joe ate 1/4 of the same pizza.
Who ate more pizza?

How much more pizza?

13. Bob pays 21/100 of his paycheck in taxes, and Chloe pays 3/10 of hers in taxes.
Who pays a bigger part of his/her paycheck in taxes?

14. The store is having a sale! Which is a bigger discount:
if a bike is discounted by 35/100 of its price,
or if it is discounted by 4/10 of its price?

15. **a.** Emily drew these pictures, trying to show
that 3/9 is more than 3/8. What is wrong?
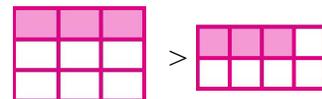
b. Draw a picture showing that,
actually, the opposite is true.

16. Write these fractions and mixed numbers in order, from the smallest to the greatest.

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

Puzzle Corner   Mom baked two rectangular pizzas. One was twice as big as the other.
Bob ate 2/3 of the smaller pizza, and Dad ate 3/8 of the larger pizza.

Who ate more pizza?

Explain your reasoning.