Eureka Math

4th Grade
Module 5
Lesson 27

At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.

Icons

Read, Draw, Write

Learning Target

Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share

Whole Class

Individual

Partner

Small Group

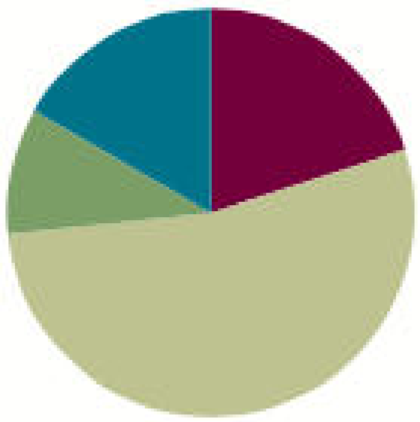
Small Group Time

Lesson 27

Objective: Compare fractions greater than 1 by creating common numerators or denominators.

Suggested Lesson Structure

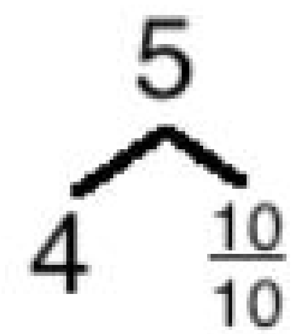
Fluency Practice	(12 minutes)
Application Problem	(6 minutes)
Concept Development	(32 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Compare fractions greater than 1 by creating common numerators or denominators.

Add and Subtract Fractions

Draw a number bond with a whole of 5. Write 4 as the known part and __/10 as the unknown part. How many tenths are in 1 whole?



Use the number bond to solve $5 - \frac{3}{10}$
Write the number sentence.

$$5 - \frac{3}{10} = 4 + \frac{7}{10} = 4\frac{7}{10}$$

Change Fractions to Mixed Numbers

$$\frac{7}{5}$$

Use a number bond to separate into a whole number and a fraction.

$$\frac{7}{5}$$

$\frac{5}{5}$ $\frac{2}{5}$

1

$$\frac{7}{5} = 1\frac{2}{5}$$

Change Mixed Numbers to Fractions

$$1\frac{1}{2}$$

Say the mixed number. Draw a number bond.
How many halves in 1 whole?

$$1\frac{1}{2}$$

$$\frac{2}{2} \qquad \frac{1}{2}$$

$$1\frac{1}{2} = \frac{3}{2}$$

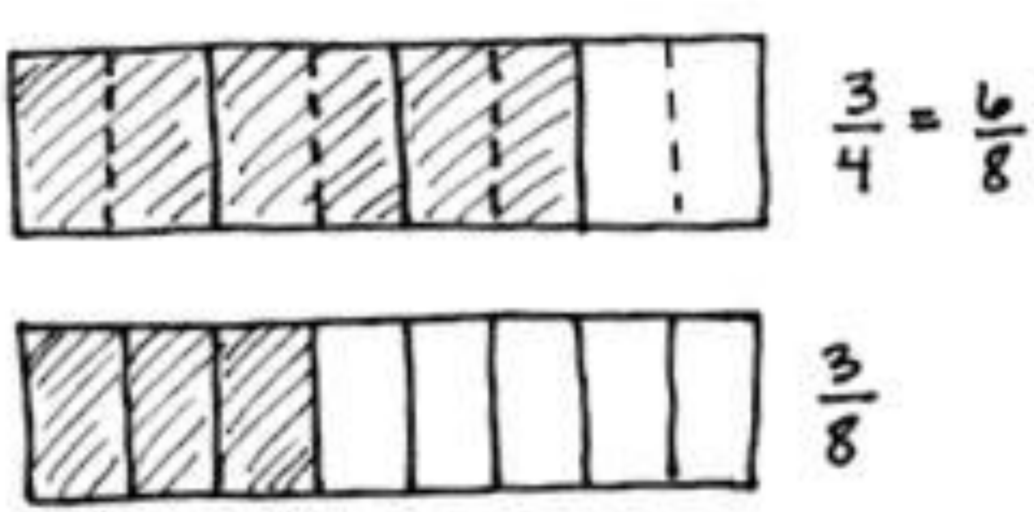
Application Problem

Jeremy ran 27 laps on a track that was ⅛ mile long. Jimmy ran 15 laps on a track that as ¼ mile long. Who ran farther?

Model, using a tape diagram, the comparison of two mixed numbers having related denominators.

Look at the mixed numbers from the Application Problem. You compared fractions by thinking about the size of units. Can you remember another way to compare fractions?

You can use common denominators. We can convert fourths to eighths by decomposing each fourth to make eighths. Draw a tape diagram to model the comparison of ¾ and ⅜ .



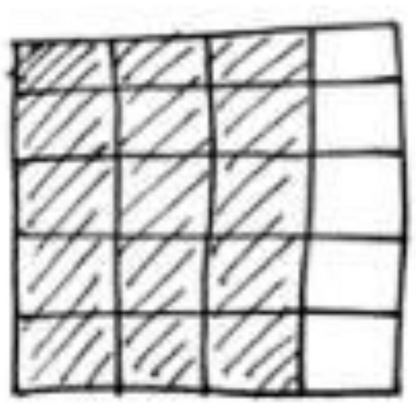
$$3\frac{3}{8} < 3\frac{3}{4}$$

With your partner, draw a tape diagram to compare $2\frac{2}{6}$ and $2\frac{3}{12}$.

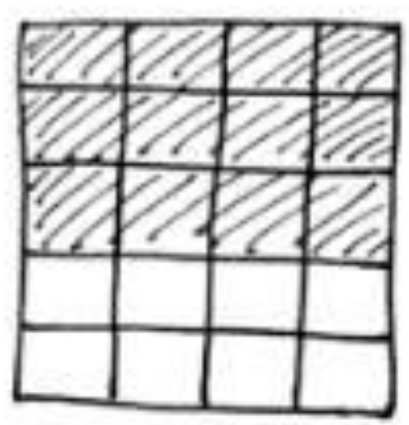
Compare two fractions with unrelated denominators.

Discuss a strategy to use to compare $4\frac{3}{4}$ and $\frac{23}{5}$.

This time, use the area model to show $\frac{3}{4}$ is greater than $\frac{3}{5}$. Draw two same-sized rectangles representing 1 one. Partition one area into fourths using vertical lines. Partition one area into fifths using horizontal lines. Make like denominators.



$\frac{3}{4} = \frac{15}{20}$



$\frac{3}{5} = \frac{12}{20}$

Compare the twentieths to prove $4\frac{3}{4} > 4\frac{3}{5}$.

Compare two fractions.

$3\frac{7}{10}$ $\frac{18}{5}$

Compare by finding like denominators.
What is different about this comparison?

Work together with your partner. One of you is Partner A, and the other is Partner B.

Partner A, convert $3\frac{7}{10}$ to a fraction, and compare it to 18 fifths. Partner B, convert $\frac{18}{5}$ to a mixed number, and compare it to 3 and 7 tenths.

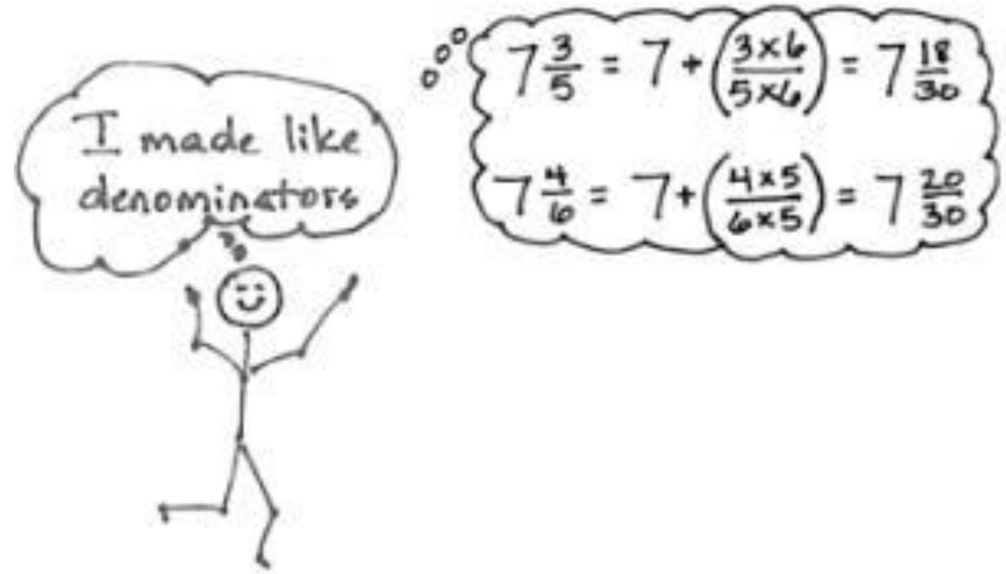
Consider using multiplication to solve. Take turns discussing how you solved. Did you both get the same answer?

Compare two fractions.

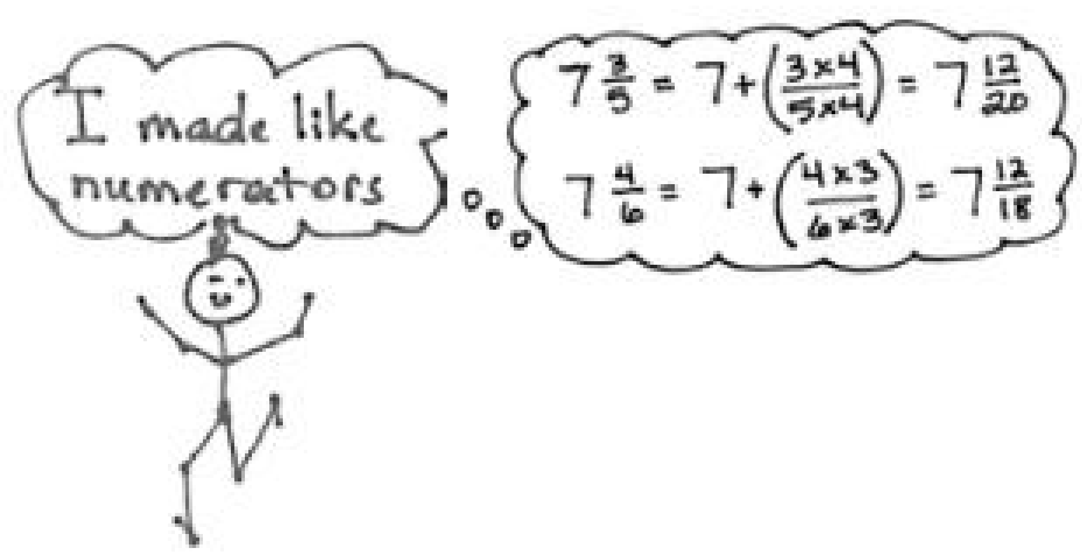
Compare $7\frac{3}{5}$ and $7\frac{4}{6}$.

We can make like denominators using multiplication. 30 is a multiple of both 5 and 6. We know that because 5 times 6 is ...?

Let's rename each fraction using multiplication to have 30 as the new denominator.



We can also rename to make like numerators.



Problem Set

Name ______________________________ Date ______________

1. Draw a tape diagram to model each comparison. Use >, <, or = to compare.

a. $3\frac{2}{3}$ ________ $3\frac{5}{6}$

b. $3\frac{2}{5}$ ________ $3\frac{6}{10}$

c. $4\frac{3}{6}$ ________ $4\frac{1}{3}$

d. $4\frac{5}{8}$ ________ $\frac{19}{4}$

Debrief

- How did the tape diagram help to solve Problem 1 (a) and (b)? Why is it important to make sure the whole for both tape diagrams is the same size?
- Who converted to a mixed number or a fraction greater than 1 before finding like units for Problem 3(c)? Was it easier to compare mixed numbers or fractions greater than 1 for this particular problem? (Note: Finding mixed numbers first, one could use a benchmark fraction of 1 half to compare $\frac{6}{10}$ to $\frac{2}{5}$ without needing to find like units.) Is it more efficient to compare fractions greater than 1 or mixed numbers?
- In Problem 3(e), the added complexity was that the denominators were not related, as in the previous problems. What strategy did you use to solve? Did you solve by finding like numerators or by drawing an area model to find like denominators?

Debrief

- Were there any problems in Problem 3 that you could compare without renaming or without drawing a model? How were you able to mentally compare them?
- How did having to compare a mixed number to a fraction add to the complexity of Problem 2(a)?
- How did the Application Problem connect to today's lesson?

Exit Ticket

Name ______________________________ Date ______________

Compare each pair of fractions using >, <, or = using any strategy.

1. $4\frac{3}{8}$ ______ $4\frac{1}{4}$

2. $3\frac{4}{5}$ ______ $3\frac{9}{10}$