Date _____

Warm-Up

CST/CAHSEE:	Review:
A pie was divided into fifths. Emily ate $\frac{1}{5}$ of the pie. Tony ate $\frac{2}{5}$ of the pie. Jenny ate $\frac{1}{5}$ of the pie. How much of the pie was left? A. $\frac{4}{5}$ B. $\frac{3}{5}$ C. $\frac{2}{5}$ D. $\frac{1}{5}$ If Emily, Tony and Jenny divided what was left, what fraction of that piece would each of them get, if divided evenly?	What is the LCM of 4 and 10? Use the bubble method to solve. What is the LCM of 8 and 20? Use the bubble method to solve.
Current:	**Other:**
Four friends share a pizza. Amount of pizza eaten: Jerome $\frac{1}{12}$ Sheena $\frac{1}{3}$ Charlotte $\frac{1}{4}$ Bruce $\frac{1}{6}$ Who ate the most pizza? How do you know?	Which fraction is <u>NOT</u> equivalent to $\frac{6}{8}$? A. $\frac{2}{4}$ B. $\frac{3}{4}$ C. $\frac{12}{16}$ D. $\frac{18}{24}$

Today's Objective/Standards: To compare fractions using the complement

Comparing Fractions using the Complement

Introduction

Today you will learn two methods of comparing fractions…finding a common denominator and using the complement.

Write the following fractions on the board:

$$\frac{2}{3} \bigcirc \frac{3}{4}$$

The first method that we will use to compare these fractions is finding a common denominator. Using the bubble method, we can determine that the least common denominator (LCD) of 3 and 4 is 12. Now, we need to make equivalent fractions with a denominator of 12.

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

Since $\frac{8}{12}$ is less than $\frac{9}{12}$, we can determine that $\frac{2}{3}$ is less than $\frac{3}{4}$.

$\therefore \frac{2}{3}<\frac{3}{4}$

Another way to compare these fractions is to look at what pieces of the fraction are needed to make the fraction whole. If I look at the fraction $\frac{3}{4}$, how many fourths are needed to make it one whole? [one]

$\frac{1}{4}$ (complement)

So the fractional piece needed to make one whole is $\frac{1}{4}$. We call $\frac{1}{4}$ the <u>complement</u> to $\frac{3}{4}$. This means that we need $\frac{1}{4}$ to make $\frac{3}{4}$ whole.

Our second fraction is $\frac{2}{3}$. How many pieces are needed to make $\frac{2}{3}$ whole? [one]

$\frac{1}{3}$ (complement)

So the fractional piece that is missing is $\frac{1}{3}$. The <u>complement</u> of $\frac{2}{3}$ is $\frac{1}{3}$.

We can now compare the complements of each fraction and ask ourselves, "Which fraction is closer to being whole or which fraction has the smallest complement?" The fraction that is closest to being a whole or has the smallest complement is the greater fraction.

Remember: The bigger the complement, the further away from one whole the fraction is.

<u>Example #2</u>

$\frac{4}{9} \bigcirc \frac{2}{3}$

Finding a Common Denominator

Using the bubble method, we find the least common denominator is 9.

$\frac{2}{3} \times \frac{3}{3} = \frac{6}{9}$

$\frac{4}{9}$ already has a denominator of 9, nothing more needs to be done.

$\frac{4}{9}$ is less than $\frac{6}{9}$.

$\therefore \frac{4}{9} < \frac{2}{3}$

Using the Complement

$\frac{4}{9}$ complement = $\frac{5}{9}$

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

The complement $\frac{1}{3}$ is smaller than $\frac{5}{9}$.

The smaller the complement, the larger the fraction so……

$\frac{4}{9} < \frac{2}{3}$

Students will work in pairs to compare the following fractions using both methods, side by side. They will compare the fractions using the strategy of finding the common denominator and using the complement.

You Try #1:

Compare the following fractions: $\frac{5}{8} \bigcirc \frac{4}{7}$

Finding a Common Denominator

Using the bubble method, we find the least common denominator is 56.

$\frac{5}{8} \times \frac{7}{7} = \frac{35}{56}$

$\frac{4}{7} \times \frac{8}{8} = \frac{32}{56}$

$\frac{35}{56}$ is greater than $\frac{32}{56}$.

$\therefore \frac{5}{8} > \frac{4}{7}$

Using the Complement

$\frac{5}{8}$ complement = $\frac{3}{8}$

$\frac{4}{7}$ complement = $\frac{3}{7}$

The complement $\frac{3}{8}$ is smaller than $\frac{3}{7}$ so $\frac{5}{8}$ is closer to one whole.

$\therefore \frac{5}{8} > \frac{4}{7}$

You Try #2:

This you try can be done in pairs again, independently, or used as an exit card question to check for understanding.

$\frac{3}{4} \bigcirc \frac{7}{8}$

Finding a Common Denominator

Using the bubble method, we find the least common denominator is 8.

$\frac{3}{4}\times\frac{2}{2}=\frac{6}{8}$

$\frac{7}{8}$ already has a denominator of 8 so nothing more needs to be done with this fraction.

$\frac{6}{8}$ is less than $\frac{7}{8}$.

$\therefore \frac{3}{4}<\frac{7}{8}$

Using the Complement

$\frac{3}{4}$ complement = $\frac{1}{4}$

$\frac{7}{8}$ complement = $\frac{1}{8}$

The complement $\frac{1}{8}$ is smaller than $\frac{1}{4}$ so $\frac{7}{8}$ is closer to one whole, thereby making it greater than $\frac{3}{4}$.

$\therefore \frac{3}{4}<\frac{7}{8}$