Objectives:

- Students will memorize the multiplication table, as evidenced by them passing "minute quizzes."
- Students will find the least common multiple of whole numbers, as evidenced by them completing a warm-up worksheet where they do so.
- Students will compare fractions by finding the least common denominator, as evidenced by them completing a homework assignment where they do so.

Student Materials on Desk Corner:

- Homework #2-7
- Homework Checker
- Readiness Checker

Student Materials for Class:

- Homework Log
- Binder Paper
- Pencils

Teacher Materials:

- "Warm-up 2-8" for each student
- "Minute Quiz 2-8" for each student
- "Homework #2-7" answer key and grading roster for TA
- "Homework #2-8" handout for each student

Homework:

- Homework #2-8

Time	Activity
Before Bell	**DO NOW** As students enter the classroom, shake hands and give them a copy of the **warm-up**. Remind students that there is a minute quiz, so students need to be seated quietly with a pencil when the bell rings.
5 min	**MINUTE QUIZ, HOMEWORK COLLECTION, AND WARM-UP** **Minute Quiz** When the bell rings, quickly go around and put the **minute quiz** on each student's desk, facedown. Then, start everyone on the quiz at the same time and give everyone one minute. While students are working on the quiz, stamp the **readiness checkers** of students who were ready when the bell rang and had their readiness checkers out. **Homework Collection** Instruct the TA go around and collect **homework** and stamp **homework checkers**. Give the TA the answer key and have him or her grade the homework that was collected. **Warm-up** After the minute quiz, students should work on the **warm-up** while you take **attendance**.
35 min	**LESSON: SIMPLIFYING FRACTIONS** **Notes** Follow the handwritten Cornell Notes. **Homework** Pass out the ""Homework #2-8" handout and have students write down the assignment on their homework logs.
40 min	**ALEKS** Students should continue with **ALEKS**. Use this student work time to **return graded homework**.

Numeracy
Minute Quiz 2-8 A

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

1 • 10 =	3 • 11 =	1 • 2 =
3 • 6 =	12 • 12 =	1 • 6 =
2 • 3 =	5 • 5 =	5 • 12 =
8 • 3 =	6 • 5 =	12 • 8 =

Numeracy
Minute Quiz 2-8 A

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

1 • 10 =	3 • 11 =	1 • 2 =
3 • 6 =	12 • 12 =	1 • 6 =
2 • 3 =	5 • 5 =	5 • 12 =
8 • 3 =	6 • 5 =	12 • 8 =

Numeracy
Minute Quiz 2-8 A

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

1 • 10 =	3 • 11 =	1 • 2 =
3 • 6 =	12 • 12 =	1 • 6 =
2 • 3 =	5 • 5 =	5 • 12 =
8 • 3 =	6 • 5 =	12 • 8 =

Numeracy
Minute Quiz 2-8 B

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

4 • 9 =	4 • 2 =	7 • 11 =
9 • 2 =	11 • 12 =	10 • 1 =
9 • 11 =	11 • 9 =	4 • 9 =
12 • 7 =	4 • 4 =	11 • 12 =

Numeracy
Minute Quiz 2-8 B

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

4 • 9 =	4 • 2 =	7 • 11 =
9 • 2 =	11 • 12 =	10 • 1 =
9 • 11 =	11 • 9 =	4 • 9 =
12 • 7 =	4 • 4 =	11 • 12 =

Numeracy
Minute Quiz 2-8 B

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

4 • 9 =	4 • 2 =	7 • 11 =
9 • 2 =	11 • 12 =	10 • 1 =
9 • 11 =	11 • 9 =	4 • 9 =
12 • 7 =	4 • 4 =	11 • 12 =

Numeracy
Minute Quiz 2-8 C

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

10 • 6 =	6 • 11 =	4 • 10 =
5 • 10 =	5 • 1 =	12 • 4 =
12 • 7 =	5 • 11 =	3 • 4 =
11 • 3 =	9 • 8 =	7 • 6 =

Numeracy
Minute Quiz 2-8 C

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

10 • 6 =	6 • 11 =	4 • 10 =
5 • 10 =	5 • 1 =	12 • 4 =
12 • 7 =	5 • 11 =	3 • 4 =
11 • 3 =	9 • 8 =	7 • 6 =

Numeracy
Minute Quiz 2-8 C

Name:
Date: Period:

Solve the following multiplication problems. You have exactly one minute!

10 • 6 =	6 • 11 =	4 • 10 =
5 • 10 =	5 • 1 =	12 • 4 =
12 • 7 =	5 • 11 =	3 • 4 =
11 • 3 =	9 • 8 =	7 • 6 =

Numeracy
Warm-up 2-8

Name:
Date: Period:

Find the least common multiple of the following pairs of whole numbers.

1) 4 and 6

2) 6 and 9

3) 3 and 4

4) 6 and 9

5) 7 and 12

6) 2 and 6

Numeracy
Warm-up 2-8

Name:
Date: Period:

Find the prime factorization of the following whole numbers.

1) 4 and 6

2) 6 and 9

3) 3 and 4

4) 6 and 9

5) 7 and 12

6) 2 and 6

Lesson 2-8
Numeracy

Tom Wong
10/29/08

Comparing Fractions

Section → Vocabulary

We've been using

$$\frac{\text{top \#}}{\text{bottom \#}}$$

for fractions. The actual math terms are

numerator
denominator

$$\frac{\text{numerator}}{\text{denominator}}.$$

Ex: $\frac{3}{4}$ has a numerator of 3 and a denominator of 4.

Section → Comparing Fractions with Common Denominators

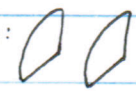
common denominator

Fractions with common denominators have bottom numbers that are the same. So, their slices are the same size.

To compare them, just compare their numerators (how many slices they have).

Ex: Compare $\frac{1}{3}$ and $\frac{2}{3}$.

one slice: 

two slices: 

So, $\frac{1}{3} < \frac{2}{3}$.

Section → Comparing Fractions with Differing Denominators

differing denominators

Fractions with differing denominators have bottom numbers that are not the same. So, their slices are not the same size.

To compare them, we find equivalent fractions with common denominators and then compare them.

Ex: Compare $\frac{1}{4}$ and $\frac{2}{6}$.

1st way: $\frac{1}{4} = \frac{1 \cdot 3}{4 \cdot 3} = \frac{3}{12}$

$\frac{2}{6} = \frac{2 \cdot 2}{6 \cdot 2} = \frac{4}{12}$

$\frac{3}{12} < \frac{4}{12}$

So, $\frac{1}{4} < \frac{2}{6}$.

2nd way: $\frac{1}{4} = \frac{1 \cdot 12}{4 \cdot 12} = \frac{12}{48}$

$\frac{2}{6} = \frac{2 \cdot 8}{6 \cdot 8} = \frac{16}{48}$

$\frac{12}{48} < \frac{16}{48}$

So, $\frac{1}{4} < \frac{2}{6}$.

In the previous example, a common denominator of 12 was easier to use than a common denominator of 48 because it used smaller numbers.

The easiest common denominator to use is the least common multiple of the two original denominators.

Ex: Compare $\frac{3}{4}$ and $\frac{7}{10}$.

First, find the lcm(4,10).

4 = 2 · 2 (2) (2)

10 = 2 · 5 (2) (5)

lcm(4,10) = 2 · 2 · 5 = 4 · 5 = 20

Now, find equivalent fractions and compare.

$\frac{3}{4} = \frac{3 \cdot 5}{4 \cdot 5} = \frac{15}{20}$

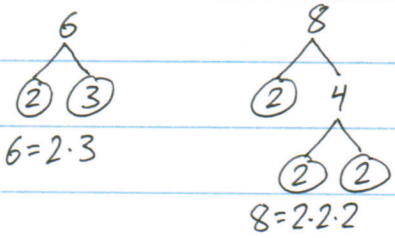
$\frac{7}{10} = \frac{7 \cdot 2}{10 \cdot 2} = \frac{14}{20}$

$\frac{15}{20} > \frac{14}{20}$

So, $\frac{3}{4} > \frac{7}{10}$.

Ex. Compare $\frac{5}{6}$ and $\frac{7}{8}$.

First, find the lcm(6,8).



$\text{lcm}(6,8) = 2\cdot2\cdot2\cdot3 = 4\cdot2\cdot3 = 8\cdot3 = 24$

Now, find equivalent fractions and compare.

$$\frac{5}{6} = \frac{5\cdot4}{6\cdot4} = \frac{20}{24}$$

$$\frac{7}{8} = \frac{7\cdot3}{8\cdot3} = \frac{21}{24}$$

$\frac{20}{24} < \frac{21}{24}$

So, $\frac{5}{6} < \frac{7}{8}$.

Comparing Fractions

Sometimes we need to compare two fractions to discover which is larger or smaller. There are two easy ways to compare fractions: using decimals; or using the same denominator

The Decimal Method of Comparing Fractions

Just convert each fraction to decimals, and then compare the decimals.

Which is bigger: $^{3}/_{8}$ or $^{5}/_{12}$?

You need to convert each fraction to a decimal. You can do this using your calculator (3÷8 and 5÷12), or you can read about Converting Fractions to Decimals. Anyway, these are the answers I get:

$^{3}/_{8}$ = 0.375, and $^{5}/_{12}$ = 0.4166...

So, $^{5}/_{12}$ is bigger.

The Same Denominator Method

If two fractions have the **same denominator** (the bottom number) then they are easy to compare.

For example $^{4}/_{9}$ is less than $^{5}/_{9}$ (because 4 is less than 5)

But if the denominators are not the same you need to **make them the same** (using Equivalent Fractions).

Example: Which is larger: $^{3}/_{8}$ or $^{5}/_{12}$?

If you multiply 8 × 3 you get 24 , and if you multiply 12 × 2 you also get 24, so let's try that (*important: what you do to the bottom, you must also do to the top*):

$$\frac{3}{8} \overset{\times 3}{=} \frac{9}{24} \quad \text{and,} \quad \frac{5}{12} \overset{\times 2}{=} \frac{10}{24}$$

so it is now easy to see that $^{10}/_{24}$ is bigger than $^{9}/_{24}$, so $^{5}/_{12}$ must be bigger.

How to Make the Denominators the Same

The trick is to find the Least Common Multiple of the two denominators. In the previous example, the Least Common Multiple of 8 and 12 was 24.

Then it is just a matter of changing each fraction to make it's denominator the Least Common Multiple.

Example: Which is larger: $^{5}/_{6}$ or $^{13}/_{15}$?

The Least Common Multiple of 6 and 15 is **30**. So, let's do some multiplying to make each denominator equal to 30 :

Now we can easily see that $^{26}/_{30}$ is larger than $^{25}/_{30}$, so $^{13}/_{15}$ is the larger fraction.

here's more ...

- Introduction to Fractions
- Least Common Multiple
- Least Common Multiple Tool
- Least Common Denominator
- Simplifying Fractions
- Adding Fractions
- Subtracting Fractions
- Fractions Index

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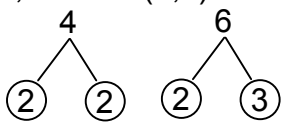
Numeracy | Name:
Homework #2-8 – Comparing Fractions | Date: | Period:

Determine if the first fraction is less than (<), equal to (=), or greater than (>) the second fraction. Do this by finding the least common multiple of the denominators and then finding equivalent fractions and comparing them.

Ex.) $\frac{3}{4}$ and $\frac{5}{6}$

First, find lcm(4,6).



$4 = 2 \cdot 2 \qquad 6 = 2 \cdot 3$

$\text{lcm}(4,6) = 2 \cdot 2 \cdot 3 = 12.$

Now, find equivalent fractions and compare

$$\frac{3}{4} = \frac{3 \cdot 3}{4 \cdot 3} = \frac{9}{12}$$
$$\frac{5}{6} = \frac{5 \cdot 2}{6 \cdot 2} = \frac{10}{12}$$
$$\frac{9}{12} < \frac{10}{12}$$

So, $\frac{3}{4} < \frac{5}{6}$.

1) $\frac{1}{10}$ and $\frac{2}{15}$

2) $\frac{2}{6}$ and $\frac{3}{8}$

3) $\frac{6}{8}$ and $\frac{30}{40}$

more on back

4) $\frac{13}{15}$ and $\frac{17}{20}$

5) $\frac{1}{4}$ and $\frac{1}{6}$

6) $\frac{11}{12}$ and $\frac{7}{8}$

7) $\frac{6}{7}$ and $\frac{6}{8}$