Lesson 3.0 Adding and Subtracting Fractions

Warmup: Complete Visual Fraction worksheet.

Goal 1: Understand a fraction $\frac{a}{b}$ with a > 1 as a sum of fractions $\frac{1}{b}$

1. Sarah had $\frac{3}{4}$ of a pie. She would like to give the pie to three of her friends. How much of the pie would each friend receive? Write an **addition statement with fractions** to show your thinking.

2. Ben had $\frac{8}{3}$ or $2\frac{2}{3}$ of pie. He would like to give eight of his friends an equal amount of pie. How much pie would each friend receive? Write an **addition statement with fractions** to show your thinking.

3. Draw a picture using circles to illustrate the situation in b.

4. Write a **multiplication statemen**t to go with your diagram in c.

Practice: Complete Visually Adding/Subtracting Simple Fractions worksheets.

Goal 2: How to Model Whole Number x Fraction

There are several methods to model this. Here are two:

Methods	$3 \times \dfrac{1}{4}$
Number line - make "whole number" parts - split the line into "denominator" parts - make "numerator" jumps	
Fraction Circles/Strips - draw "whole number" circles - split circle into "denominator" parts - shade in "numerator" parts on each circle - combine to determine "wholes"	

Practice Questions

5. Solve the following using a model.

$$2\frac{3}{8} + 1\frac{1}{8}$$

6. Can we use another method to solve? **Hint:** Convert the mixed numbers into improper fractions.

Improper fraction: a fraction in which the _____ is greater than the _____ .

Mixed number: a number consisting of an _____ and a proper _____ .

Goal 3: Add and Subtract fractions with unlike denominators (including mixed numbers) using equivalent fractions. In general, $\frac{a}{b} + \frac{c}{d} = \frac{(ad+bc)}{bd}$.

7. Using a model draw out the fractions $\frac{1}{4}$ and $\frac{2}{8}$. What do you notice?

Equivalent fractions: fractions with _____ numerators and denominators that represent the same value or proportion of the whole.

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8. Do the following question using what you have learned in 7. Do NOT use a model.

$$\frac{1}{4} + \frac{3}{8}$$

When adding or subtracting fractions, the denomination must always be the **same.** In fact, the **fastest** way to do this is to multiply the denominators together to find the _____ denominator.

9. Practice.

a) $\frac{2}{5} + \frac{1}{3}$ b) $\frac{6}{7} + \frac{1}{4}$ c) $\frac{9}{4} - \frac{2}{5}$ **d)** $\frac{7}{10} - \frac{1}{2}$

Homework: Complete Adding/Subtracting Fractions worksheet and Adding/Subtracting Mixed Numbers worksheet.

Lesson 3.0 Adding and Subtracting Fractions Continued

Recall, when adding/subtracting fractions with "unlike" denominators, we can multiply the two "unlike" denominators to get a common denominator. But we will see in today's lesson that what you are really after is the _____ common denominator.

The lowest common denominator is also called the lowest common _____.

How to Find the Lowest Common Denominator (LCD or LCM).

i.   List out the multiples of the first number, then list out the multiples of the second number.
ii. Find the first multiple they have in common.
iii. That number is your LCD or LCM.

1. Find the LCM for the following numbers

a) 5 and 7   b) 2, 6, and 3   c) 6 and 9   d) 2, 4, and 11

Note when adding and subtracting fractions, **you should always find the LCD**. You also need to check that your final answer is in the **simplest form or lowest terms**.

Try these:

a) $\frac{2}{15} + \frac{1}{6}$ b) $\frac{5}{6} - \frac{1}{3}$ c) $\frac{9}{12} - \frac{3}{5}$ d) $\frac{8}{10} - \frac{1}{2}$

Homework: Complete Adding/Subtracting Fractions with Unlike Denominators Worksheets