Fractions Unit   4.2

A fraction is a way of representing part of a whole or part of a group.
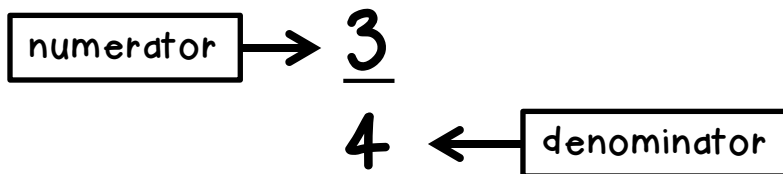
A fraction is used to name a part of one thing or a part of a collection of things.
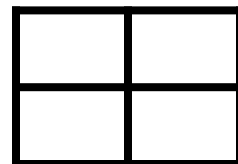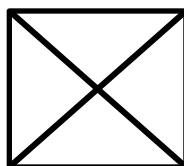
Fraction-Vocabulary

Numerator-the top number in a fraction. The numerator tells how many equal parts are described.
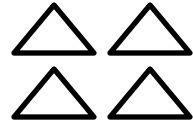
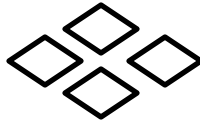numerator $\longrightarrow$ $\dfrac{3}{4}$ $\longleftarrow$ denominator

Denominator- the bottom number in a fraction. The denominator tells how many equal parts in all.

Parts of a Region- shade to show 3/4

Parts of a Region- shade to show 2/4

○ ○ ○ ○   ◇ ◇ ◇ ◇   △ △ △ △

p. 502

Adding and Subtracting fractions with like denominators

When 2 or more fractions have the same denominator, we call them "like" denominators or "common" denominators

Fractions can only be added if the denominator is the same. Later on we will learn how to add fractions with "unlike" denominators...but for now we will stick to adding factions with "like" or "common" denominators.

When the denominators are the same, then all you have to do is add the numerators. The denominators remain the same.

$\frac{4}{8} + \frac{2}{8} = \frac{6}{8}$ $\frac{2}{7} + \frac{3}{7} =$

$\frac{3}{12} + \frac{4}{12} =$ $\frac{5}{8} - \frac{1}{8} =$

$\frac{4}{9} - \frac{2}{9} =$ $\frac{8}{10} - \frac{5}{10} =$

p. 564

2

Mixed Numbers & Improper Fractions

Mixed Numbers- are a number that has a mixed number and a fraction.

example: $3 \frac{2}{4}$

Improper Fractions- are fractions in which the numerator is larger than the denominator.

example: $\frac{9}{4}$

You can easily go from a mixed number to an improper fraction.....or an improper fraction to a mixed number.

Let's start by going from a mixed number to an improper fraction. To do this you need to use multiplication.

$$2 \frac{1}{4} = \frac{9}{4}$$

First multiply the denominator 4 and the whole number 2   4x2=8 then add the denominator 1 to total. This will give you the numerator. The denominator is the same as the original denominator..

3

(Mixed Number & Improper Fractions continued)

Directions: Turn these mixed numbers into improper fractions.

$3\frac{1}{3}$ $5\frac{1}{2}$ $4\frac{2}{3}$

$1\frac{3}{6}$ $6\frac{1}{3}$ $2\frac{3}{5}$

Now we are going to make improper fractions into mixed numbers. To do this you need to use division.

$$\frac{8}{3} = 2\frac{2}{3}$$

First figure out how many times the denominator goes into the numerator without going over. This will be your whole number. Your denominator will stay the same. To find out your numerator you need to multiply your denominator by your whole number. Next subtract that product from the original numerator. Sounds confusing??? Not to worry we will do lots and lots of practicing.

Directions: Turn these improper fractions into mixed numbers.

$\frac{6}{4}$ $\frac{7}{2}$ $\frac{9}{6}$ $\frac{15}{6}$

$\frac{11}{3}$ $\frac{5}{2}$ $\frac{14}{3}$

Common Factors

Factors-the numbers multiplied together to find a product. You will need to figure out common factors to put fractions into simplest form.

Directions: Give all of the factors for the following numbers.

2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Simplest Form

    The first step in finding the simplest form is to find the GCF.

GCF-_____

So how do you find LCM?   First you find the factors of both the numerator and denominator. The one that is the lowest or smallest is the LCM.

$\dfrac{4}{6}$ 1, 2, 4
       1, 2, .3, 6

Let's Practice. Give the GCF for each of these fractions.

$\dfrac{6}{9}$ $\dfrac{9}{15}$

$\dfrac{8}{10}$ $\dfrac{4}{10}$

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

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

6

(Simplest Form continued)

   Once you've figured out the GCF then you can do step w which is to divide both the numerator and denominator by the GCF.

$$\frac{4}{6} \quad \begin{matrix} 1, & 2, & 4 \\ 1, & 2, & .3, \end{matrix} \quad 6$$

Since the GCF is 2, then you need to divide the numerator and denominator by 2

$$2 \div \frac{4}{6} = \frac{2}{3}$$

Let's Practice. Find the GCF for each of these fractions and then divide the fraction to find the simplest form.

$$\frac{3}{9}$$ $$\frac{9}{12}$$

$$\frac{5}{10}$$ $$\frac{6}{10}$$

$$\frac{6}{8}$$ $$\frac{4}{8}$$

$$\frac{11}{12}$$ $$\frac{4}{12}$$

7

Adding Fractions
with Unlike Denominators

Directions: Add or Subtract Fractions with unlike denominators.

Before you can solve these problems, you have to do the math to make the denominators the same. This will take multiplication.

$$\frac{1}{3} + \frac{2}{6} \qquad\qquad \frac{1}{5} + \frac{3}{6}$$

$$\frac{1}{3} + \frac{2}{6} \qquad\qquad \frac{2}{8} + \frac{1}{2}$$

$$\frac{3}{6} + \frac{2}{3} \qquad\qquad \frac{3}{8} - \frac{1}{4}$$

$$\frac{2}{3} - \frac{4}{9} \qquad\qquad \frac{8}{10} - \frac{2}{5}$$

$$\frac{2}{4} - \frac{1}{3} \qquad\qquad \frac{6}{8} - \frac{1}{2}$$

Comparing Fractions

Directions: Compare Fractions using < = >. To do this you need to make the denominators the same. You will use **multiplication** for this..

$\dfrac{1}{2}$ $\dfrac{2}{6}$ $\dfrac{1}{12}$ $\dfrac{3}{4}$

$\dfrac{1}{3}$ $\dfrac{2}{5}$ $\dfrac{2}{8}$ $\dfrac{1}{7}$

$\dfrac{3}{9}$ $\dfrac{2}{3}$ $\dfrac{3}{6}$ $\dfrac{1}{4}$

$\dfrac{2}{3}$ $\dfrac{4}{12}$ $\dfrac{4}{10}$ $\dfrac{2}{5}$

$\dfrac{2}{4}$ $\dfrac{1}{3}$ $\dfrac{6}{10}$ $\dfrac{1}{2}$

9

Comparing Fractions

Directions: Compare Fractions using < = >. To do this you need to make the denominators the same. You will use multiplication for this..

$\dfrac{1}{2} \qquad \dfrac{2}{6}$ $\qquad\qquad\qquad$ $\dfrac{1}{12} \qquad \dfrac{3}{4}$

$\dfrac{1}{3} \qquad \dfrac{2}{5}$ $\qquad\qquad\qquad$ $\dfrac{2}{8} \qquad \dfrac{1}{7}$

$\dfrac{3}{9} \qquad \dfrac{2}{3}$ $\qquad\qquad\qquad$ $\dfrac{3}{6} \qquad \dfrac{1}{4}$

$\dfrac{2}{3} \qquad \dfrac{4}{12}$ $\qquad\qquad\qquad$ $\dfrac{4}{10} \qquad \dfrac{2}{5}$

$\dfrac{2}{4} \qquad \dfrac{1}{3}$ $\qquad\qquad\qquad$ $\dfrac{6}{10} \qquad \dfrac{1}{2}$

9