Unit 9   Adding and Subtracting Like Fractions

1. **Like fractions** have the same denominator. $\frac{1}{5}$ and $\frac{3}{5}$ are like fractions.

2. **Addition**

   A. Add numerators.

   B. Denominator does not change.

You have six candy bar halves. How many candy bars do you have?

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

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

$$= \frac{6}{2} = 3 \text{ candy bars}$$

Reminder: The line between the numerator and the denominator is a division symbol. $6 \div 2 = 3$

You have two quarters. What part of a dollar do you have?

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

2 quarters may be **reduced** (simplified to its lowest denominator)

$$\frac{2 \div 2}{4 \div 2} = \frac{1}{2} \text{ dollar}$$

Reducing fractions to their lowest denominator requires dividing both numerator and denominator by the largest whole number that will divide into each exactly.

3. **Subtraction**

   A. Subtract numerators.

   B. Denominator does not change.

You gave 2 of your 6 candy bar halves to a friend. How many do you have left?

$$\frac{6}{2} - \frac{2}{2} = \frac{6-2}{2} = \frac{4}{2}$$

Reduce 4 halves

$$\frac{4 \div 2}{2 \div 2} = \frac{2}{1} = 2 \text{ candy bars}$$

Note: Multiplying or dividing the numerator and denominator of a fraction by the same number does not change its value.

You spent 2 dimes ($\frac{2}{10}$ of a dollar) of your $\frac{1}{2}$ dollar on a pencil. Find your change. Convert a half-dollar to its equivalent tenths and subtract.

$$\frac{1}{2} - \frac{2}{10}$$

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

$$= \frac{5}{10} - \frac{2}{10}$$

$$= \frac{3}{10} \text{ of a dollar}$$

Note: Always reduce final answers to lowest terms.