ADDING & SUBTRACTING FRACTIONS

WHEN TWO FRACTIONS HAVE THE SAME DENOMINATOR

Add or subtract the numerators to form the new numerator. The denominator stays the same. When working with mixed numbers, add or subtract the whole numbers too.

$$\frac{2}{9} + \frac{5}{9} = \frac{7}{9} \qquad 6\frac{6}{7} - 2\frac{2}{7} = 4\frac{4}{7}$$

FRACTION BASICS

A **fraction** names part of a whole or part of a group.

The number above the bar is the **numerator**. The number below the bar is the **denominator**.

$$\frac{3}{4}$$

In a **proper fraction**, the numerator is less than the denominator. The value of a proper fraction is less than one.

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

In an **improper fraction**, the numerator is greater than or equal to the denominator. The

$$3\frac{5}{8} \qquad \frac{9}{}$$

FRACTIONS, DECIMALS, & PERCENTS

Fractions can be expressed as decimals or percents. Here are some common fractions written as decimals and percents:

FRACTION	DECIMAL	PERCENT	FRACTION	DECIMAL	PERCENT
	0.125	12.5%		0.5	50%
	0.2	20%		0.625	62.5%
	0.25	25%		0.6	66.6%
	0.3	33.3%		0.75	75%
	0.375	37.5%		0.8	80%
	0.4	40%		0.875	87.5%

CHANGING FRACTIONS TO DECIMALS

Divide the numerator by the denominator.

$$\frac{1}{4}$$

```
     .25
4)1.00
     8
     20
     20
      0
```

$$\frac{1}{4} = .25$$

CHANGING FRACTIONS TO PERCENTS

1. Divide the numerator by the denominator.

$$\frac{3}{4}$$

```
     .75
4)3.00
    2 8
      20
      20
       0
```

2. Move the decimal point two places to the right.
   75.

3. Add a percent sign.
$$\frac{3}{4} = 75\%$$

Multiplying & Dividing Fractions

MULTIPLYING FRACTIONS

To multiply fractions, change any mixed numbers to improper fractions. Multiply the numerators and multiply the denominators.

$$\frac{3}{8} \times \frac{4}{5} = \frac{3 \times 4}{8 \times 5} = \frac{12}{40}$$

When necessary, simplify the answer:

$$\frac{12}{40} = \frac{3}{10}$$

DIVIDING FRACTIONS

To divide fractions, change any mixed numbers to improper fractions. Invert (turn upside-down) the second fraction and then multiply the numerators and multiply the denominators.

$$\frac{3}{4} \div \frac{1}{7} = \frac{3}{4} \times \frac{7}{1} = \frac{21}{4}$$

When necessary, change the answer to a mixed number.

$$\frac{21}{4} = 5\frac{1}{4}$$