

## 6.1 Percents, Decimals, and Fractions

### Fraction (ratio) to Decimal

Divide the numerator by the denominator  
(the king goes in the castle)

#### Terminating Decimal (ends)

$$\frac{7}{8} = 8 \overline{)7.000} \quad 0.875$$

#### Repeating Decimal

$$\frac{5}{6} = 6 \overline{)5.0000} = 0.8\overline{3}$$

(number that is repeating only gets written ONCE;  
use **bar notation** only over repeating digits)

### Decimal to Fraction (ratio)

**Terminating Decimal** (place the number over a power of 10; **simplify**)

$$0.26 = \frac{26}{100} = \frac{13}{50}$$

$$-4.03 = -4\frac{3}{100}$$

$$0.006 = \frac{6}{1000} = \frac{3}{500}$$

**Repeating Decimal** (denominator is 9, or 99, or 999, etc.; **simplify**)

$$0.\overline{3} = \frac{3}{9} = \frac{1}{3}$$

$$-4.\overline{25} = -4\frac{25}{99}$$

## Percent to Fraction (ratio)

Percent means out of 100, therefore, you can write a percent as a fraction with a denominator of 100, remove % symbol and then reduce to simplest form. When simplifying, you can't have a decimal in your fraction!!!

$$25\% = \frac{25}{100} = \frac{1}{4}$$

$$-135\% = -\frac{135}{100} = -1\frac{35}{100} = -1\frac{7}{20} \text{ or } -\frac{27}{20}$$

$$3\% = \frac{3}{100}$$

$$*8.5\% = \frac{8.5}{100} = \frac{85}{1000} = \frac{17}{200}$$

## Fraction (ratio) to Percent

Write the fraction 7/25 as a percent:

1.) Form a proportion of the fraction equal to  $\frac{x}{100}$ .

round to the tenths place if necessary, add a % symbol

$$\frac{7}{25} = \frac{x}{100} \quad x = 28\%$$

2.) Turn the fraction into a decimal; move the decimal 2 places to the right; round to tenths place, if necessary; add a % symbol

[i.e divide and multiply by 100]

$$\frac{7}{25} = 25 \overline{) 0.28} = 28\%$$

$$\frac{8}{26} = 30.8\%$$

$$-\frac{7}{9} = -77.8\%$$

$$\frac{12}{13} = 92.3\%$$

$$\frac{4}{7} = 57.1\%$$

## Decimal to Percent (on RPJ p.115)

Multiply the number by 100  
(move the decimal 2 places to the right and add a % sign)

$$-0.85 = -85\%$$

$$2.59 = 259\%$$

$$0.0075 = 0.75\%$$

$$4 = 400\%$$

## Percent to Decimal

Divide the number by 100 (move the decimal  
2 places to the left) and remove the % symbol

$$4\% = 0.04$$

$$122\% = 1.22$$

$$-56.7\% = -0.567$$

$$5\frac{1}{2}\% = 0.055$$

(may change  $5\frac{1}{2}$  into 5.5 first)

Remember what you are already familiar with when you aren't sure.  
For example:

$$\frac{1}{2} = 50\% = 0.5$$