Math 107
Spring 2017
Lecture 2

Ch. 2: Basic Percent

① By translation ② By Proportion

what, what number	x
P%, what percent	$\frac{P}{100}$
% of	$\cdot$
is, get, become, equal	$=$
a of b	$\frac{a}{b}$

what is 4% of 250?

$x = \frac{4}{100} \cdot 250$

$x = .04\,(250)$

$x = 10$

4% of 250 is 10.

10 is 4% of 250.

8% of what number is 400?

$\frac{8}{100} \cdot x = 400$

$.08 \cdot x = 400$

$.08x = 400$

$x = \frac{400}{.08} \Rightarrow x = 5000$

8% of 5000 is 400.

What Percent of 250 is 750?

$\frac{P}{100} \cdot 250 = 750$

$\frac{25}{\cancel{250}} P = 750$

$\cancel{100}_{10}$

$\frac{25}{10} P = 750$

$2.5P = 750$

$P = \frac{750}{2.5}$

$P = 300$

300% of 250 is 750.

What percent is 3 of 8?

$\frac{P}{100} = \frac{3}{8}$

Multiply both sides by 100

$\cancel{100} \cdot \frac{P}{\cancel{100}} = 100 \cdot \frac{3}{8}$

$P = \frac{300}{8}$

$P = 37.5$

37.5% is 3 of 8.

4.5% of what number is 150?

$\frac{4.5}{100} \cdot x = 150$

$.045x = 150$

$.045x = 150$

$x = \frac{150}{.045}$ $x = 3333.\overline{3}$

About 4.5% of 3333 is 150.

120% of what number is 600?

$\frac{12}{\cancel{120}} \cdot \frac{\cancel{100}}{10} x = 600$

$\frac{12}{10} x = 600$

$1.2x = 600$

$x = \frac{600}{1.2}$

$x = 500$

120% of 500 is 600

A computer is on sale @ 20% off.
the Sale price is $680.
Find the original price.

we are paying 80% of original Price.

80% of original price is the Sale price.

$8\frac{80}{100} \cdot x = 680$

10

$.8x = 680$

$x = \frac{680}{.8}$

$x = 850$

$850

Lisa works at a dealership and gets Paid by Commission. Her Salary is 4% of her sales.
Last month, her Salary was $2800.
Find the amount of her Sale.

4% of her Sale is her Salary

4% of x $= 2800$

$.04 \cdot x = 2800$

$x = \frac{2800}{.04}$

$x = 70{,}000$

her Sale was $70,000

Due Next week: wp Ch.2

Ratio of a to b is $\frac{a}{b}$

Ratio of 1.5 to 45 is $\frac{1.5}{45}$

$$\frac{1.5}{45} = \frac{1.5(10)}{45(10)} = \frac{15}{450} = \frac{\cancel{15}\cdot 1}{\cancel{15}\cdot 30} = \frac{1}{30}$$

1.5 cups of Sugar for 20 Muffins.

$$\frac{1.5 \text{ cups Sugar}}{20 \text{ Muffins}}$$

How many cups of Sugar for 50 Muffins.

$$\frac{x \text{ cups of Sugar}}{50 \text{ Muffins.}}$$

If we equate two ratios, we get Proportion.

$$\frac{1.5}{20} = \frac{x}{50}$$

To Solve a proportion, we cross-Multiply

$$20x = 50(1.5)$$

$$x = \frac{50(1.5)}{20}$$

$$\boxed{x = 3.75}$$

3.75 cups of Sugar for 50 muffins.

2.5 inches on the map is for 400 actual miles.

Two cities were 8 inches apart on the map.

Find actual distance.

$$\frac{2.5 \text{ inches}}{400 \text{ Miles}} = \frac{8 \text{ inches}}{x \text{ Miles}}$$

$$\frac{2.5}{400} = \frac{8}{x}$$

$$2.5x = 8(400)$$

$$x = \frac{8(400)}{2.5}$$

$$\boxed{x = 1280}$$

Actual distance is 1280 miles.