Math 107

Fall 2016

Lecture 5

In a Sample of 120 Students, 15 of them were left-handed. At this rate, how many Students are left-handed if we survey 4000 Students?

$$\frac{15 \text{ left-handed}}{120 \text{ Students}} = \frac{x \text{ left-handed}}{4000 \text{ Students}}$$

Solve $\frac{15}{120} \times \frac{x}{4000}$

Cross-Multiply

$120x = 15(4000)$

$x = \frac{15(4000)}{120}$

$x = 500$

500 students will be left-handed

John contacted 45 people in 8 hrs as part of his telemarking job.

How many people can he contact in 5 days working 8-hr shift?

$$\frac{45 \text{ people}}{8 \text{ hrs}} = \frac{x \text{ People}}{5(8)} \Rightarrow \frac{45}{8} = \frac{x}{40}$$

Cross-Multiply

$8x = 40(45)$

$8x = 1800$

$x = \frac{1800}{8}$

$x = 225$

225 people in 5 days

Basic Percent

$$\frac{P}{100} = \frac{\text{Part}}{\text{whole}}$$ "whole comes after of"

4.5% of what number (whole) is 27?

$$\frac{4.5}{100} = \frac{27}{x}$$

$4.5x = 27(100)$

$x = \frac{2700}{4.5}$

$x = 600$

4.5% of 600 is 27

$\frac{4.5}{100} \cdot x = 27$ $\quad .045x = 27$ $\quad x = \frac{27}{.045}$ $\quad x = 600$

What percent of 120 is 108?

$$\frac{P}{100} = \frac{\text{Part}}{\text{whole}}$$

$$\frac{P}{100} = \frac{108}{120}$$

$$120P = 108(100)$$

$$P = \frac{10800}{120}$$

$$P = 90$$

90% of 120 is 108.

$$\frac{P}{100} \cdot 120 = 108$$

$$\frac{120}{100} P = 108$$

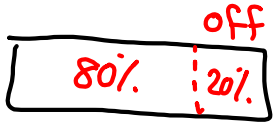
$$\frac{12}{10} P = 108$$

$$1.2P = 108$$

$$P = \frac{108}{1.2}$$

$$P = 90$$

Sonia plans to buy a TV.
It is on sale for 20% off.
Regular price is $750.
Find the sale price.



Sale Price is 80% of Regular Price. (100%)

$$x = \frac{80}{100} \cdot 750$$

$$x = 8(75) = 600$$

$600

$$\frac{P}{100} = \frac{\text{Part}}{\text{whole}} \qquad \frac{80}{100} = \frac{x}{750} \rightarrow x = 600$$

Maria bought a purse for $160, She then sold it online for $192. what was her rate of increase?

192 is what percent of 160?

$\frac{P}{100} = \frac{\text{Part}}{\text{whole}}$ $\quad \frac{P}{100} = \frac{192}{160}$

120%

$160P = 192(100)$

$P = \frac{19200}{160}$

20% rate of increase $\quad P = 120$

Amount of increase is what% of original

$192 - 160$

$32 = \frac{P}{100} \cdot 160$

$32 = \frac{160}{100} P$

Rate of increase: 20%

$32 = 1.6P$

$P = \frac{32}{1.6}$ $\quad P = 20$

last Year, Gas was sold for $2.75/ga.

Now - - - - - - ..... $2.50/ga.

Find the rate of decrease.

Amount of decrease is what % of original

$$.25 = \frac{P}{100} \cdot (2.75)$$

$$.25 = \frac{2.75}{100} P$$

$$.25 = .0275 P$$

$$P = \frac{.25}{.0275}$$

$P = 9.09$

Rate of decrease is about 9%

$$\frac{7}{100} = 0.07$$

$$\frac{7.5}{1000} = 0.0075$$

$12.85 (10) = 128.5$

$12.85 (100) = 1285$

$12.85 (1000) = 12850$

Ch. 4 Total, Parts

There are 14 people in this room.

# of females is 2 fewer than Males.

How many of each?

Total = 14

Male + Female = 14

$F = x - 2$

$M = x$

$x + x - 2 = 14$

$2x - 2 = 14$

$2x = 14 + 2$

$2x = 16$

$x = 8$

8 Males & 6 Females

Jose has 22 Coins.

Nickes & Dimes only.

# of dimes is 1 more than twice # of nickels.

How many of each?

Total is 22.

Nickels + Dimes = 22

Dimes = $2x + 1$

Nickels = x

$x + 2x + 1 = 22$

$3x + 1 = 22$

$3x = 22 - 1$

$3x = 21$

$x = \frac{21}{3}$

$x = 7$

7 Nickels & 15 Dimes