Math 1000

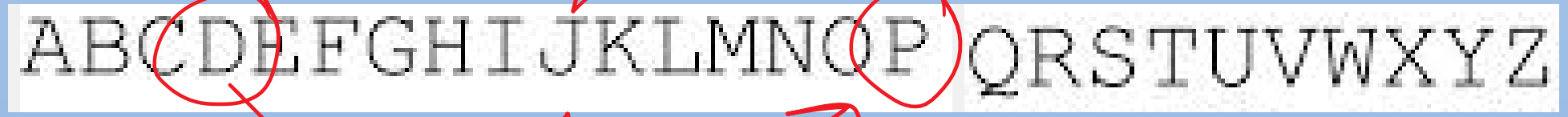
Chapter 8 Sections 1 & 2

Percent (%)

3 Elementary Ideas that will help on some basic problems:

Remember that percent means per 100….or divided by 100.

Here is an easy way to remember how to change a decimal to percent, or vice versa (alphabet)



And to find a percent **of** a number, such as ‘find 27% of a number’, simply multiply .27 times the number

Converting Fractions, Percent, and Decimals

Convert 57.4% to a decimal.

$\frac{57.4}{100}$ $57.4\% = .574$

Convert .1589 to a percent.

$.1589 = 15.89\%$

Convert $\frac{7}{20}$ to a percent.

$$20\overline{)7.0} = .35$$

-60

100

$\frac{7}{20} = .35 = 35\%$

In order to solve percent problems using Algebra (next slide)…lets review some real basic Algebra skills:

$5x = 20$

$\frac{5x}{5} = \frac{20}{5}$

$x = 4$

$\frac{x}{100} = 4$ (100)

$x = 400$

$(42)\frac{x}{100} = 3$ (100)

$\frac{42x}{42} = \frac{300}{42}$

$x = 7.14$

Lets solve percent problems using some Algebra skills:

What is 17% of 200?

$x = .17 \cdot 200 = 34$

30 is 45% of what?

$\frac{30}{.45} = \frac{.45x}{.45}$ $\quad x = 66.\overline{6}$

8 is what % of 22?

$(100)8 = \frac{x}{100}(22)(100)$

$\frac{800}{22} = \frac{22x}{22}$ $\quad x \approx 36.36$

- An exercise machine with an original price of $860 is on sale at 12% off. What is the amount of discount? What is the exercise machine's sale price?

What is 12% of 860?

$x = .12 \cdot 860 = \$103.20$

$\$860 - \$103.20 = \$756.80$

When you need to find the ORIGINAL PRICE, you have a little more algebra to do:

Bret bought a video game that was on sale for 20% off. His price (after the sale) was $28.80. What was the original price?

x = original price

$1x - .20x = 28.80$

$.80x = 28.80$

$.80 \quad .80$

$x = \$36$

Once again…When you need to find the ORIGINAL PRICE, you have a little more algebra to do:

Austin bought a stereo that cost $153.70 after paying the 6% sales tax. What was the price of the stereo before sales tax?

x = original price

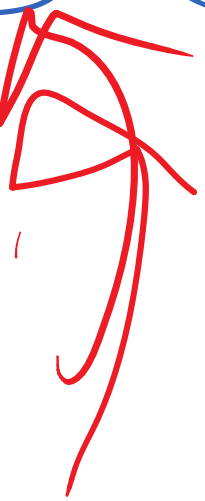
$1x + .06x = 153.70$

$\frac{1.06x}{1.06} = \frac{153.70}{1.06}$

$x = 145$

Percent of Increase & Percent of Decrease

Just remember $\frac{increase}{original}$ or $\frac{decrease}{original}$ and then change the decimal to a percent!



Example: Your old math teacher used to weight 180 pounds, but then he snapped his Achille's tendon playing basketball and couldn't exercise for a few months, which caused his weight to increase to 192 pounds. Find the percent of increase in his weight.

$$\begin{array}{r} 192 \\ -180 \\ \hline 12 \text{ lbs.} \end{array}$$ increase

$$\frac{12}{180} = .0666\ldots$$

6.66%