Today's Target

Check 3.6 extension homework:

1) 24in.
2) 10cm
3) 16M
4) 40ft
5) 37.5ft

3.7

Percents

I can solve percent verbal phrases by using equations or proportions.

I can use percentages to find total cost when a tax and/discount are applied.
Examples:

What is 178% of 88.4?
\[ \frac{178}{100} = \frac{x}{88.4} \]

5% of what is 68?
\[ \frac{5}{100} = \frac{68}{x} \]

49.1 is 82% of what?
\[ \frac{49.1}{x} = \frac{82}{100} \]

24 is what percent of 146?
\[ \frac{24}{146} = \frac{x}{100} \]

Applying Proportions

~ Always make sure to put the percentage over 100.

\[ 85\% = \frac{85}{100} = \frac{is}{of} \]

Equal that to ...

~ Another fraction where "is" is over "of"

(This means that the number near "is" will be the numerator and the number near "of" will be the denominator.)

Whatever word is near "what" is the unknown.
How to set the proportion:

\[
\frac{\text{is}}{\text{of}} = \frac{\%}{100}
\]

**Equation Vocab:**

**IS** - Numerator

**OF** - Denominator

**WHAT** - Solving variable

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**What percent of 66.3 tons is 20 tons?**

\[
\frac{20}{66.3} = \frac{x}{100}
\]

- **A** 30.2%
- **B** 132.4%
- **C** 30.1%
35% of 84 miles is what?

\[
\frac{35}{100} = \frac{x}{84}
\]

\[x = 29.4 \text{ miles}\]

B) 41.67 miles

C) 240 miles

Continuing Percents:
Percent of Change

\[
\frac{x}{10} = \frac{2}{5}
\]

Example: Movie Theater Ticket Prices
2000 - $5.39  
2011 - $7.96
By what percent did prices change?

\[
\frac{\text{change}}{\text{original}} = \frac{\text{percent}}{100} \\
\frac{7.96 - 5.39}{5.39} = \frac{x}{100}
\]

Percent of Change Proportion to use:
Original: 30
new: x

\[ \frac{30-x}{30} = \frac{15}{180} \]

percent = 15%

- Original: 35
  New: 29

- Original: 28
  New: 19

\[ \frac{6}{35} = \frac{x}{100} \]

- Original: 120
  New: 75

- Original: 25
  New: 35

- Original: 550
  New: 425

\[ \frac{88-72}{72} = \frac{x}{100} \]

- Original: 78
  New: 44

- Original: 72
  New: 88

+ 2.2% increase
AE is having a sale on jeans. The jeans are usually $39.95, but are 15% off. How much would I spend on two pairs of jeans?

\[
\frac{15}{100} = \frac{x}{79.90 \times 15}
\]

\[
11.99 \approx 79.90 - 11.99
\]

Percents Continued:

Discounts and Tax

~ When you find the discount ... multiply the amount by the percent. Subtract the product from the original amount.

~ Other way ...

\[
\text{Original} - (\text{Original} \times \%)
\]

~ When you find the tax ... multiply the amount by the percent. Add the product to the original amount.

~ Other way ...

\[
\text{Original} + (\text{Original} \times \%)
\]
You want to buy a $139 pair of tennis shoes. How much would they cost if you had a 35% off coupon?

\[ 139 - (139 \times .35) \]

What about the 6.5% tax rate?

\[ 139 + (139 \times .065) \]

\[ \text{\underline{095}} \]

What is the total after the sales tax on a purchase of $336 at 6.75% sales tax rate taken into account?

- A $226.80
- B $358.68
- C $313.22
Simple Interest

\[ I = Prt \]

\( I = \) Simple Interest
\( P = \) Principal - the amount you start with.
\( r = \) Rate - always a %
\( t = \) Time - needs to be in years.

Alexis deposited $400 into a savings account that earns 2% simple interest. How much interest will she earn after 5 years?
If $3000 is loaned for 4 months at a 4.5% annual rate, how much interest is earned?

If you paid $30 to a loan company for the use of $1000 for 60 days, what annual rate of interest did they charge?

A. .05%
B. 18.3%
C. 202.84%