

Percent Proportion

10/10

* Use For Word problems *

$$\frac{\%}{100} = \frac{\text{IS (Part)}}{\text{OF (Whole)}}$$

Examples:

1. What is 30% of 60?

$$\frac{\%}{100} = \frac{\text{is}}{\text{of}}$$

~~$$\frac{30}{100} = \frac{x}{60}$$~~

$$\frac{1800}{100} = \frac{100x}{100} \quad \boxed{x=18}$$

2. What percent of 75 is 15?

$$\frac{\%}{100} = \frac{\text{is}}{\text{of}}$$

~~$$\frac{x}{100} = \frac{15}{75}$$~~

$$\frac{75x}{75} = \frac{1500}{75}$$

$$\boxed{x=20\%}$$

Tax, Tips & Markups 10/9

* Additional money you have to pay

Steps

- ① Use the Percent Proportion to Find the tax, tip or mark-up amount (is)
- ② Add amount From Step 1 to the original amount.

Examples - Find the total cost

① \$18 breakfast
18% tip

$$\frac{\%}{100} = \frac{\text{IS}}{\text{of}}$$

$$\frac{18}{100} = \frac{x}{18}$$

$$\frac{100x}{100} = \frac{324}{100}$$

$$x = \$3.24 \leftarrow \text{tip}$$

$$18 + 3.24 = \boxed{\$21.24}$$

② \$185 Computer
6% Markup

$$\frac{6}{100} = \frac{x}{185}$$

$$\frac{100x}{100} = \frac{1110}{100}$$

$$x = \$11.10 \leftarrow \text{markup}$$

$$185 + 11.10 = \$196.10$$

③ \$15 DVD
7.5% Tax

$$\frac{7.5}{100} = \frac{x}{15}$$

$$\frac{100x}{100} = \frac{112.5}{100}$$

$x = \$1.125 \rightarrow \1.13

$$15 + 1.13 = \boxed{\$16.13}$$

Tax, Tips & Markups 10/15

Before:	Now:	New Steps:
DVD: \$20 tax: 7.5% $\frac{7.5}{100} = \frac{x}{20}$ $\frac{100x}{100} = \frac{150}{100}$ $x = \$1.50$ $20 + 1.50 =$ $\boxed{\$21.50}$	$\frac{7.5}{100} = 0.075$ 0.075 0.075×20 $\$1.50 \leftarrow$ How much tax $20 + 1.50 = \boxed{\$21.50}$	<ol style="list-style-type: none"> Turn % into a decimal (Move decimal 2 places left) 2nd → 2 (%) Multiply \$ and decimal (This the amount of tax, tip or Markup) Add

Practice What is 18% of 45?
 $X = 18\% \times 45$

① Shirt: \$25
 tax: 4% $\rightarrow 0.04$
 $0.04 \times 25 = \$1$
 $25 + 1 = \$26$

② Dinner: \$45
 tip: 18% $\rightarrow 0.18$
 $45 \times 0.18 = \$8.10$

$$\begin{array}{r} 45.00 \\ + 8.10 \\ \hline \$53.10 \end{array}$$

 tax: 5% $\rightarrow 0.05$
 $45 \times 0.05 = 2.25$

$$\begin{array}{r} 53.10 \\ + 2.25 \\ \hline \$55.35 \end{array}$$

③ Haircut: \$30
 tax: 5.5%
 tip: +16%
 $21.5\% \rightarrow 0.215$

$$30 \times 0.215 = \$6.45$$

$$30 + 6.45 = \$36.45$$

* Tax and Tip
 are the ONLY
 Percents you can
 add Together!

④ CD player: \$22

Markup: 30% ← FIRST (0.3)

tax: 5% ← 2nd (0.05)

$$\begin{array}{l}
 \text{Markup} \\
 22 \times 0.3 = \$6.60 \\
 22 + 6.60 = \$28.60
 \end{array}
 \left\{
 \begin{array}{l}
 \text{Tax} \\
 28.60 \times 0.05 = \$1.43 \\
 + 1.43 \\
 \boxed{\$30.03}
 \end{array}
 \right.$$

Discounts

10/18

To Find Discounts/Sale Price:

- ① Make % a decimal
- ② Multiply decimal by original Price
- * ③ Subtract

Examples - Find the Sale Price

① Coat: \$220
Discount: 40% → .40

$$220 \times .40 = \$88$$

$$220 - 88 = \boxed{\$132}$$

② Shoes: \$45.95
Discount: 20%

.20

$$45.95 \times .20 = \$9.19$$

$$45.95 - 9.19 =$$

$$\boxed{\$36.76}$$

③ How much are you saving?

Water Bottle: \$9.99

Discount: 13% → .13

$$9.99 \times .13 = \boxed{\$1.30}$$

④ Find the Clearance Price.

Bathing Suit: \$75.49

Discount: 70% → 0.70

$$75.49 \times .70 = 52.84$$

$$75.49 - 52.84 = \boxed{\$22.65}$$