

## Commission, Sales Tax, Mark Up, Mark Down

When we multiply each side of the proportion  $\frac{r}{100} = \frac{Amount}{Base}$  by the Base, we get:  $Amount = \frac{r}{100} \cdot Base$

This equation is often useful when working with Commission and Sales Tax.

### Commission and Sales Tax

CJ receives a 6% commission on everything sold. If CJ sold items for \$1,240 during the summer, what would the amount of CJ's commission?

$$\text{Set up: } Amount = \frac{r}{100} \cdot Base \qquad Amount = \frac{6}{100} \cdot 1240$$

AG also worked during the summer for the same company, but at a different commission rate. If AG sold items for \$500 and received \$45 in commission, what was AG's rate of commission?

$$\text{Set up: } \frac{r}{100} = \frac{Amount}{Base} \qquad \frac{r}{100} = \frac{45}{500}$$

County sales tax is 5.5%. If the tax on a purchase was \$90.75, what was the price of the purchase?

$$\text{Set up: } \frac{r}{100} = \frac{Amount}{Base} \qquad \frac{5.5}{100} = \frac{90.75}{Base}$$

TRY: Set up each problem and solve it.

JZ works on a 4% commission basis. JZ sold \$45,000 in merchandise during 1 month. What was the amount of JZ's commission?

If the tax on a \$130 purchase is \$9.75, what is the sales tax in that state?

If CJ had received an 8% commission, how much would CJ need to sell to receive \$1,240 in commission?

## Mark Up and Mark Down

A store marks up items to make a 20% profit. If an item costs \$6.80 from the supplier, what will be the amount of profit? What will be the Sale price? (Profit, increase, Mark Up are all similar terms.)

$$\text{Set up for Profit: } \textit{Amount} = \frac{r}{100} \bullet \textit{Base} \quad \textit{Amount} = \frac{20}{100} \bullet 6.80 \quad \textit{Amount} = 1.36$$

$$\begin{aligned} \text{Set up for Sale Price:} \quad \text{OriginalPrice} + \text{MarkUp} &= \text{SalePrice} \\ 6.80 + 1.36 &= 8.16 \end{aligned}$$

Shirts that normally sell for \$25 are marked down 10%. What will be the amount of discount? What is the final sale price before taxes? (Discount, decrease, Mark Down are all similar terms.)

$$\text{Set up for Discount: } \textit{Amount} = \frac{r}{100} \bullet \textit{Base} \quad \textit{Amount} = \frac{10}{100} \bullet 25 \quad \textit{Amount} = 2.50$$

$$\begin{aligned} \text{Set up for Sale Price:} \quad \text{OriginalPrice} - \text{MarkDown} &= \text{SalePrice} \\ 25 - 2.50 &= 22.50 \end{aligned}$$

The furniture store increased the price of the newer chair by 12%. If the increase was \$13.92, what was the original price before the increase?

$$\text{Set up for Increase: } \frac{r}{100} = \frac{\textit{Amount}}{\textit{Base}} \quad \frac{12}{100} = \frac{13.92}{\textit{Base}} \quad \textit{Base} = 116$$

TRY: Set up each problem and solve it.

If the 5.5% tax on a purchase was \$90.75, what was the price of the purchase?

A new fax machine was recently purchased for an office for \$464.40 including tax. If the tax rate is 8%, find the price of the fax machine before tax. CAREFUL – this one is different.

At the end of the semester, rental textbooks go on sale at 20% off. Find the sale price of a \$110 book.

The price of a new compact car has increased \$819 over the previous year. If this amounts to a 4.5% increase, what was the price of the car before the increase?