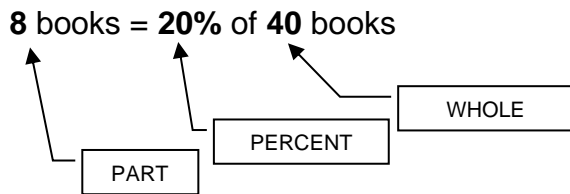


Solving Percent Word Problems



Percent questions usually have 3 numbers, called the **PART**, the **PERCENT** and the **WHOLE** (or **ORIGINAL AMOUNT**).

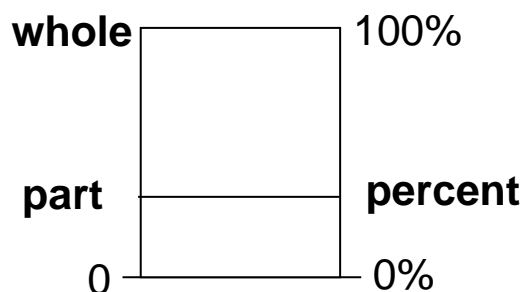
Word problems give you **two** of the numbers. You will be asked to find the **third** number.

If you are given the **percent** and the **whole**, you have to find the **part**.

If you are given the **part** and the **whole**, you have to find the **percent**.

If you are given the **part** and the **percent**, you have to find the **whole**.

Solving Percent Word Problems – Visual Method

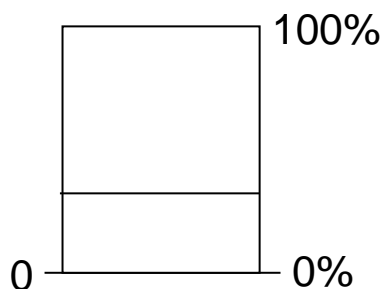


Example 1

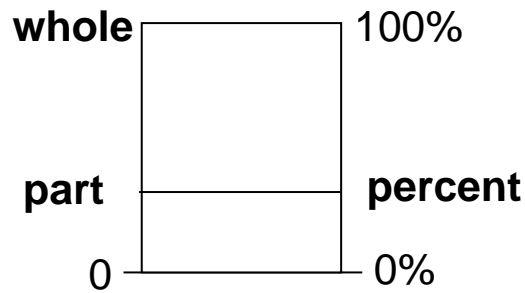
A calculator that normally sells for \$30 is marked as 20% off. What is the sales price?

Example 2

A fast food snack contains 15% fat. If the snack weighs 60 grams, what is the weight of the fat?



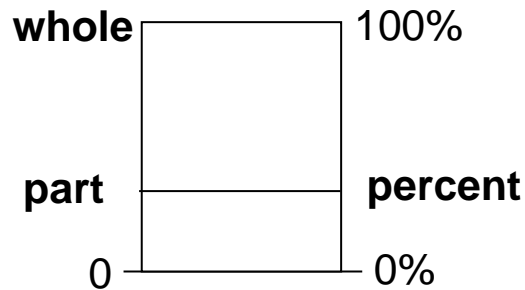
Solving Percent Word Problems – Visual Method



Solve using the visual method.

1. A basketball player makes 60% of his free throws. He attempts 25 free throws. How many does he make?
2. A typical human body is 90% water. What is the weight of the water in a person that weighs 70 kg?

Solving Percent Word Problems – Visual Method

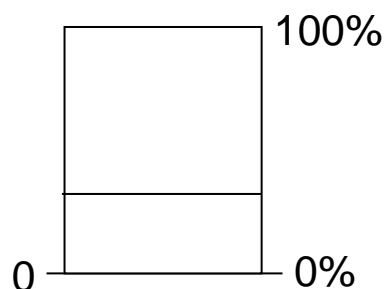


Example 1

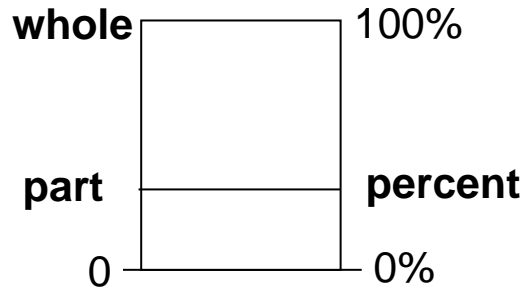
A student answered 13 out of 20 questions correctly. What percent did she answer correctly?

Example 2

Andrew Johns made 12 out of 17 conversions. What percent of his kicks did he convert?

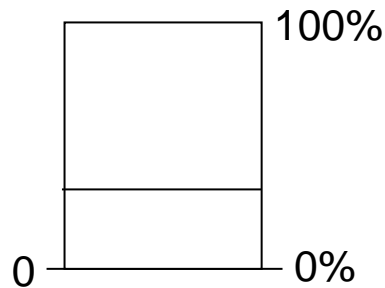


Solving Percent Word Problems – Visual Method

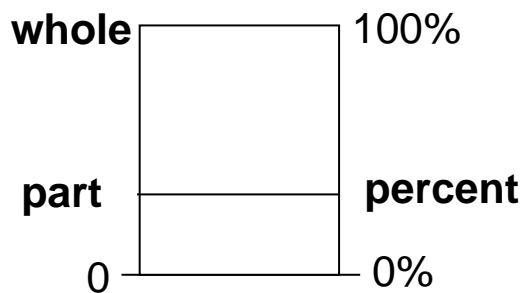


Solve using the visual method.

1. I got a \$6 discount on a shirt that cost \$30. What percentage off did I receive?
2. A basketball player makes 12 out of 15 free throws. What percentage of his free throws did he make?

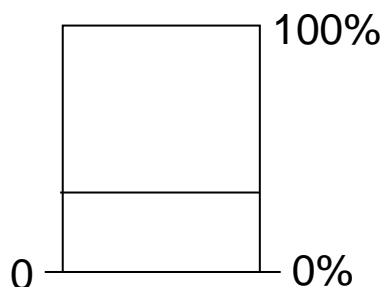


Solving Percent Word Problems – Visual Method



Example

Shirts were advertised at 25% off. I bought a shirt and saved \$12. How much did the shirt cost originally?



Solving Percent Word Problems – Algebraic Method

The formula for percent questions is

$$\text{Part} = \text{Percent} \times \text{Whole}$$

Note: Write the percent as a decimal first.

Example 1

A calculator that normally sells for \$30 is marked as 20% off. What is the discount?

$$\text{Part} = ?$$

$$\text{Percent} = 20\% = 0.2$$

$$\text{Whole} = 30$$

$$\text{Part} = \text{Percent} \times \text{Whole}$$

$$\begin{aligned} \text{Discount} &= 0.2 \times 30 \\ &= \$6 \end{aligned}$$

The discount was \$6.

Example 2

A cat gave birth to 3 male kittens and 2 female kittens. What percent were male?

$$\text{Part} = 3$$

$$\text{Percent} = ?$$

$$\text{Whole} = 5$$

$$\text{Part} = \text{Percent} \times \text{Whole}$$

$$3 = \text{Percent} \times 5$$

$$\frac{3}{5} = \frac{\text{Percent} \times \cancel{5}}{\cancel{5}}$$

{divide both sides by 5}

$$\text{Percent} = \frac{3}{5} = 3 \div 5 = 0.6$$

$$0.6 \times 100 = 60\%$$

60% of the litter was male.

Example 3

A salesman earns 9% commission. Last week he earned \$450 commission. What were his total sales for the week?

$$\text{Part} = 450$$

$$\text{Percent} = 9\% = 0.09$$

$$\text{Whole} = ?$$

$$\text{Part} = \text{Percent} \times \text{Whole}$$

$$450 = 0.09 \times \text{Whole}$$

$$\frac{450}{0.09} = \frac{\cancel{0.09} \times \text{Whole}}{\cancel{0.09}}$$

{÷ both sides by 0.09}

$$\text{Whole} = \frac{450}{0.09} = 5000$$

His sales were \$5000.