

Problem 1

There are 35 questions on a test. All questions have equal value. If Tom gets 28 questions right, what is his mark on the test?

28 is what percent of 35

$$\frac{28}{35} = N\% \cdot \frac{35}{35}$$

$$\frac{28}{35} = N\%$$

$$0.8 = N\% \text{ so, } N = 80\%$$

Bill is driving to a city 525 miles away. If he has driven 72% of the way, how many more miles does he have to go?

If he has driven 72%, he has $100 - 72\% = 28\%$ left to go.

What is 28% of 525 ?

$$N = 0.28 \cdot 525$$

$$N = 147 \text{ miles to go}$$

Problem 3

A store is selling sewing machines at a 15% discount. If a particular machine costs \$136 on sale, what was its original price? (Hint: see example 5 above.)

136 is 85% of what?

$$\frac{136}{0.85} = \frac{0.85 \cdot N}{0.85}$$

$$160 = N$$

Problem 4

An appliance dealer bought some television sets for \$180, and resold them for \$225. What percent of the original cost was his profit?

$$\text{Profit} = 225 - 180 = 45 \text{ dollars}$$

45 is what percent of 180?

$$\frac{45}{180} = \frac{N\%}{180} \cdot 180$$

$$0.25 = N\% \quad \text{so, } N = 25\%$$

Problem 5

Bob has to read a book which is 275 pages long. If he has read 40% of the book, how many pages has he read?

What is 40% of 275 ?

$$N = 0.40 \cdot 275$$

$$N = 110$$

Problem 6

Steve sold 22% of his stamp collection. If he sold 286 stamps, how many did he have originally?

286 is 22% of what?

$$\frac{286}{0.22} = \frac{0.22 \cdot N}{0.22}$$

$$1,300 = N$$

Problem 7

Ann had \$500 at the beginning of the year. If she has \$360 left, what percent of her money did she spend?

$$500 - 360 = 140 \text{ left}$$

140 is what percent of 500?

$$\frac{140}{500} = N\% \cdot \frac{500}{500}$$

$$0.28 = N\%, \text{ so } N = 28\%$$

Problem 8

John is going into business selling belts. If he buys one type of belt for \$3.00 each, how much must he sell them for to make a profit of 40% on his original cost?

What is 140% of 3.00?

$$N = 1.40 \cdot 3.00$$

$$N = \$4.20$$

Problem 9

A bookstore will buy used books for 60% of the original selling price. If Karen receives \$8.40 for a used book, what was its original price?

\$8.40 is 60% of What?

$$\frac{8.40}{0.60} = \frac{0.60 \cdot N}{0.60}$$

$$\$14.00 = N$$

Problem 10

Out of a group of 325 people, 26 were taller than 6 feet. What percent of the total were taller than 6 feet?

26 is What Percent of 325 ?

$$\frac{26}{325} = \frac{N\%}{325} \cdot 325$$

0.08 = N% : So, N = 8%

Problem 11

A certain shirt sells for \$17.50. If the storekeeper is making a profit of 25%, how much does he pay for these shirts? (Hint: Let M stand for what he paid, then $M + (25\% \text{ of } M) = \17.50)

$$17.50 = 125\% \text{ of What?}$$

$$\frac{17.50}{1.25} = \frac{1.25 \cdot N}{1.25}$$

$$14 = N$$

Problem 12

A salesman works on commission. If he receives \$18.00 for selling a machine which costs \$300, what is his commission rate?

18 is What Percent of 300 ?

$$\frac{18}{300} = \frac{N\%}{300} \cdot 300$$

$$0.06 = N\% : \text{So, } N = 6\%$$

Problem 13

A certain kind of metal is 4% carbon. If there are 10 pounds of carbon in a batch of metal, how many pounds are in the batch?

10 is 4% of What ?

$$10 = 0.04 \cdot N$$

$$\frac{10}{0.04} = \frac{0.04 \cdot N}{0.04}$$

$$250 = N$$