PERCENTAGES 1

1) What is 25% of 360? What percent of 40 is 60? 45% of what is 18?

2) What is 15% of 80? What percent of 160 is 32? 20% of what is 45?

3) What is 18% of 90? What percent of 540 is 189? 30% of what is 27?

4) A jacket originally priced at € 75 is marked 25% off. What is the sale price?

5) Your friend diets and goes from 125 pounds to 110 pounds. What was her percentage weight loss?

6) A television is on sale for €345. If the sale price is 25 % less than the regular price. What was the regular price?

7) Judy's salary increase from €1500 to €1590. What was the percent increase?

8) A test has 20 questions. If Peter gets 80% correct, how many questions did Peter missed?

9) 24 students in a class took a geography test. If 18 students passed the test, what percent do not pass?

10) Mike bought a pizza that was priced at €8, and the total bill was €8.56. What was the IVA?

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SOLUTION

1) What is 25% of 360? What percent of 40 is 60? 45% of what is 18?

$$25\% \text{ of } 360 = \frac{25 \times 360}{100} = 90$$

$$\frac{60}{40} = \frac{x}{100\%} \Rightarrow x = \frac{60 \times 100}{40} = 150\%$$

$$\frac{18}{x} = \frac{45}{100} \Rightarrow 45x = 1800 \Rightarrow x = \frac{1800}{45} = 40$$

2) What is 15% of 80? What percent of 160 is 32? 20% of what is 45?

$$15\% \text{ of } 80 = \frac{15 \times 80}{100} = 12$$

$$\frac{32}{160} = \frac{x}{100\%} \Rightarrow x = \frac{32 \times 100}{160} = 20\%$$

$$\frac{45}{x} = \frac{20}{100} \Rightarrow 20x = 4500 \Rightarrow x = \frac{4500}{20} = 225$$

3) What is 18% of 90? What percent of 540 is 189? 30% of what is 27?

$$18\% \text{ of } 90 = \frac{18 \times 90}{100} = 16.20$$

$$\frac{189}{540} = \frac{x}{100\%} \Rightarrow x = \frac{189 \times 100}{540} = 35\%$$

$$\frac{27}{x} = \frac{30}{100} \Rightarrow 30x = 2700 \Rightarrow x = \frac{2700}{30} = 90$$

4) A jacket originally priced at € 75 is marked 25% off. What is the sale price?

$$\frac{x}{75} = \frac{25}{100} \Rightarrow x = \frac{25 \times 75}{100} = 56.25 \rightarrow \text{the sale price is €56.25}$$

5) Your friend diets and goes from 125 pounds to 110 pounds. What was her percentage weight loss?

$$\frac{110}{125} = \frac{x}{100} \Rightarrow 125x = 11000 \Rightarrow x = \frac{11000}{125} = 88 \rightarrow 100 - 88 = 12\%$$

her percentage weight loss was 12%

6) A television is on sale for €345. If the sale price is 25 % less than the regular price. What was the regular price?

$$\frac{345}{x} = \frac{75}{100} \Rightarrow 75x = 34500 \Rightarrow x = \frac{34500}{75} = 460 \rightarrow \text{ The regular price was €460}$$

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7) Judy's salary increase from €1500 to €1590. What was the percent increase?

$$\frac{1590}{1500} = \frac{x}{100} \Rightarrow 1500x = 159000 \Rightarrow x = \frac{159000}{1500} = 106 \rightarrow 106 - 100 = 6$$

6% was the percent increase

8) A test has 20 questions. If peter gets 80% correct, how many questions did peter missed?

$$\frac{x}{20} = \frac{80}{100} \Rightarrow 100x = 80 \times 20 \Rightarrow x = \frac{1600}{100} = 16 \rightarrow \text{ Peter missed 20-16=4 questions}$$

9) 24 students in a class took a geography test. If 18 students passed the test, what percent do not pass?

$$\frac{18}{24} = \frac{x}{100} \Rightarrow 24x = 1800 \Rightarrow x = \frac{1800}{24} = 75 \rightarrow 75\% \text{ of the student passed the test}$$

25% of the students did not pass the test

10) Mike bought a pizza that was priced at €8, and the total bill was €8.56. What was the IVA?

$$\frac{8.56}{8} = \frac{x}{100} \Rightarrow 8x = 856 \Rightarrow x = \frac{856}{8} = 107 \rightarrow 107 - 100 = 7 \text{ %}$$

The IVA was 7%