

## 5.6 PERCENT PROBLEMS

ESSENTIAL QUESTION: How can you find the percent of a number?

### FINDING THE PERCENT OF A NUMBER

If you think of taking a test, you are trying to find out how many problems you got right when you know how many questions are on the test and what your percentage is.

1. 60% of 150 is what number?    2. 20% of 60 is what number?    3. 25% of 40 is what number?

$$\frac{60}{100} \div \frac{20}{100} = \frac{3}{5}$$

$$\frac{3}{5} \cdot \frac{150}{1} = 90$$

$$\frac{20}{100} \div \frac{20}{100} = \frac{1}{5}$$

$$\frac{1}{5} \cdot \frac{60}{1} = 12$$

$$\frac{25}{100} \div \frac{25}{100} = \frac{1}{4}$$

$$\frac{1}{4} \cdot \frac{40}{1} = 10$$

### TO FIND THE PERCENT OF A NUMBER

Write the percent as a fraction. Then multiply by the whole. The percent times the whole equals the part.

### FINDING THE WHOLE

If you think of taking a test, you are trying to find out how many problems are on the test when you know how many questions you got right and what your percentage is.

1. 60% of what number is 42?

$$\frac{60}{100} \div \frac{20}{100} = \frac{3}{5}$$

$$\frac{42}{1} \div \frac{3}{5} = \frac{42}{1} \cdot \frac{5}{3} = 70$$

2. 120% of what number is 72?

$$\frac{120}{100} \div \frac{20}{100} = \frac{6}{5}$$

$$\frac{72}{1} \div \frac{6}{5} = \frac{72}{1} \cdot \frac{5}{6} = 60$$

3. 62% of what number is 31?

$$\frac{62}{100} \div \frac{2}{100} = \frac{31}{50}$$

$$\frac{31}{1} \div \frac{31}{50} = \frac{31}{1} \cdot \frac{50}{31} = 50$$

4. 75% of what number is 48?

$$\frac{75}{100} \div \frac{25}{100} = \frac{3}{4}$$

$$\frac{48}{1} \div \frac{3}{4} = \frac{48}{1} \cdot \frac{4}{3} = 64$$

### FINDING THE WHOLE

Write the percent as a fraction. Then divide the part by the fraction. The part divided by the percent equals the whole.

Using coupons, you spend \$135 grocery shopping. This is 75% of the total retail price of the groceries. How much would you have spent if you had not used the coupons?

$$\frac{75}{100} \div \frac{25}{100} = \frac{3}{4}$$

$$\frac{135}{1} \div \frac{3}{4} = \frac{135}{1} \cdot \frac{4}{3} = 180$$

You would have spent \$180 if you had not used the coupon.

There are 50 students in a class. 14% of the students are absent today. How many students are absent?

$$\frac{14}{100} \div \frac{2}{100} = \frac{7}{50}$$

$$\frac{7}{50} \cdot 50 = 7$$

$$\frac{7}{50} \cdot \frac{50}{1} = 7$$

7 students are absent today.