

# PERCENT

**PERCENT - A NUMBER OUT OF 100**

20% MEANS 20 OUT OF 100 =  $\frac{20}{100}$   
↑ LESS THAN WHOLE

3% MEANS 3 OUT OF 100 =  $\frac{3}{100}$

110% MEANS 110 OUT OF 100 =  $\frac{110}{100}$   
↑ MORE THAN 1 WHOLE

% → FRACTION

$$27\% = \frac{27}{100}$$

FRACTION → %

RATIO TABLE METHOD

$$\frac{2}{5} = \frac{40}{100} = 40\%$$

DIVISION METHOD

$$\frac{2}{5} \div \frac{5}{5} = \frac{2 \cdot 2}{5 \cdot 2} = \frac{4}{10} = \frac{4 \cdot 10}{10 \cdot 10} = \frac{40}{100} = 40\%$$
$$5 \overline{) 2.0} \begin{array}{r} 4 \\ -20 \\ \hline 0 \end{array}$$

% → DECIMAL

$$27\% = \frac{27}{100} = .27$$

[ DECIMAL MOVES 2 PLACES LEFT ]

DECIMAL → %

$$.56 = \frac{56}{100} = 56\%$$

[ DECIMAL MOVES 2 PLACES RIGHT ]

$$120\% = 1.20 \text{ OR } 1.2$$

$$1.76 = 176\%$$

## USING PROPORTIONS TO SOLVE % PROBLEMS

USE TO SET UP AND SOLVE

$$\begin{array}{l} \text{(is)} \\ \text{(of)} \end{array} \frac{\text{PART}}{\text{WHOLE}} = \frac{\%}{100} \quad \text{---} = \frac{\text{---}}{100}$$

1) WHAT IS 20% OF 240?

$$\frac{48}{240} = \frac{20 \div 10}{100 \div 10} = \frac{2}{10}$$

*(Note: The fraction 48/240 is highlighted in yellow. Green arrows labeled 'x24' point from the denominator 240 to the numerator 48 and from the denominator 100 to the numerator 20.)*

2) 60 IS 75% OF WHAT NUMBER?

$$\frac{60}{80} = \frac{75 \div 25}{100 \div 25} = \frac{3}{4}$$

*(Note: The fraction 60/80 is highlighted in yellow. Orange arrows labeled '20 x' point from the denominator 80 to the numerator 60 and from the denominator 100 to the numerator 75.)*

3) WHAT IS 5% OF 200?

$$\frac{10}{200} = \frac{5}{100}$$

*(Note: The fraction 10/200 is highlighted in yellow. Green arrows labeled '2 x' point from the denominator 200 to the numerator 10 and from the denominator 100 to the numerator 5.)*

4) 8 IS 40% OF WHAT NUMBER?

$$\frac{8}{20} = \frac{40}{100}$$

*(Note: The fraction 8/20 is highlighted in yellow. Green arrows labeled '5 ÷' point from the denominator 20 to the numerator 8 and from the denominator 100 to the numerator 40.)*