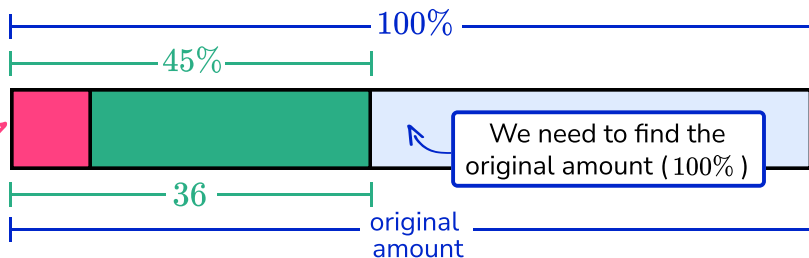


# Reverse Percentages

 **Example** 45% of an amount is 36. Find the original amount.

## Non-calculator (stepped method)



**1** Find an "easy" percentage to work with. 5 is a factor of 45 and 100, so finding 5% is useful here.

$$45\% = 36$$

$$\div 9 \quad \div 9$$

$$\rightarrow 5\% = 4$$

$$\times 2 \quad \times 2$$

$$10\% = 8$$

$$\times 10 \quad \times 10$$

$$100\% = 80$$

**2** Multiply up to get back to 100%. This may be done in stages or all in one go.

## Unitary method

In the unitary method we always find 1% first.

$$45\% = 36$$

$$\div 45$$

$$\div 45$$

$$\rightarrow 1\% = 0.8$$

$$\times 100$$

$$\times 100$$

$$100\% = 80$$

**1** Divide to find 1%

**2** Multiply by 100 to find

This method can sometimes be tricky without a calculator.

## Percentage multipliers

To find the original amount, we **divide** by the **percentage multiplier**.

**1** Find the multiplier.

$$45\% \xrightarrow{\div 100} 0.45$$

**2** Divide by the multiplier.

$$36 \div 0.45 = 80$$