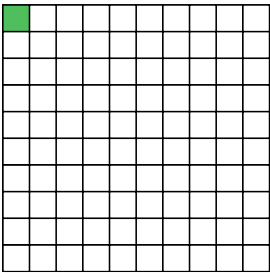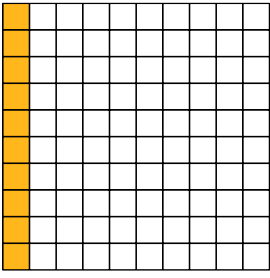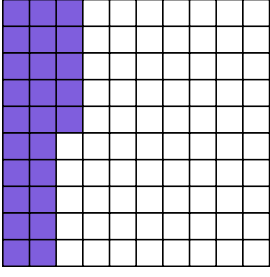# Calculating Percentages

'**Percent**' means 'number of parts in 100'. This means that if we want to write a percentage (%) as a **fraction**, it has to have a **denominator of 100**.

For example, **35 percent** is the same as **35%** and $\frac{35}{100}$. Below are more examples!

Pictorial	Percentage	Fraction
	1 part per hundred **1%**	$\frac{1}{100}$
	10 parts per hundred **10%**	$\frac{10}{100}$ or $\frac{1}{10}$
	25 parts per hundred **25%**	$\frac{25}{100}$ or $\frac{1}{4}$

When **calculating the percentage** of a number, we can multiply our number by a fraction that is equivalent to our percentage. Read on to find out more!

Method

Let's look at two different ways we can find **15% of 200**.

Method 1: Turn 15% into a fraction, then multiply by 200.

1 Find an **equivalent fraction of 15%**.

15% is the same as $\frac{15}{100}$ so **15%** of 200 is the same as $\frac{15}{100}$ of 200.

2 Multiply $\frac{15}{100}$ by 200. Remember, finding a fraction of an amount is the same as **multiplying the amount by that fraction**!

We need to **multiply the numerator** (the top number of the fraction) by 200. The denominator (bottom number) will stay the same! **Simplify if possible.**

$$\frac{15}{100} \times 200 = \frac{15 \times 200}{100} = \frac{15 \times 2\cancel{00}}{1\cancel{00}} = \frac{15 \times 2}{1} = 15 \times 2 = 30$$

3 15% of 200 is 30.

Method 2: Find 10% and 5% of 200, then add these values together.

1 Find 10% of 200.

10% of 200 is the same as **200 ÷ 10**, so this must be **20**.

2 Find 5% of 200.

5% is half of 10% so we need to halve our value for 10%: **20 ÷ 2 = 10**.

3 Add the values for 5% and 10% together to get 15% of 200.

20 + 10 = **30** so we can once again conclude that 15% of 200 is 30.

Which method did you prefer?

Example Question

Ato is reading a hefty 400-page book.

If Ato has read 30% of the book, how many pages are left?

A 80	**B** 120	**C** 160	**D** 240	**E** 280

1 30% is the same as 3 lots of 10%, so start by finding **10% of 400**.

We need to find 10% of 400 so we need to calculate **400 ÷ 10 = 40**.

2 **30%** is the same as 3 x 10% so we need to **multiply whatever 10% is by 3**.

40 x 3 = **120**

3 Finally, we need to subtract 30% from 400 because we need to find out **how many pages are left** of the book.

400 - 120 = **280**

We also could have multiplied 10% by 7 to find the remaining percentage of the book (100% - 30% = 70%).

The correct answer is **E**. There are **280** pages left in Ato's book.