

## Mixed Percentages

### Starter

1. **(Review of last lesson)** A special packet of sweets contains 80 sweets, which is 27% more than a normal packet. How many sweets are in a normal packet?

### Notes

These are the types of percentages questions:

1. Express one quantity as a percentage of another (think “test scores”).

**E.g.** In a test I got 35 out of 40. What was my percentage?

**Working:**  $\frac{35}{40} \times 100\% = 87.5\%$   
My percentage was 87.5%.

2. Find a percentage of a quantity.

**E.g.** Find 16% of 80.

**Working:**  $16\% \equiv 0.16$   
 $16\% \text{ of } 80 = 0.16 \times 80 = 12.8$

3. Increase/decrease by a percentage

**E.g.** Increase 400 by 7%.

**Working:**  $100\% + 7\% = 107\% \equiv 1.07$   
 $1.07 \times 400 = 428$   
400 increased by 7% is 428

4. Find the percentage increase/decrease ( $\% \text{ change} = \frac{\text{Difference}}{\text{Original}} \times 100\%$ )

**E.g.** Find the percentage reduction when the selling price is reduced from £48 to £36.

**Working:**  $\% \text{ change} = \frac{48 - 36}{48} \times 100\% = 25\%$   
The percentage reduction is 25%

5. Reverse percentages (look for words like “was” and “before”)

**E.g.** My salary is now £24960 after an increase of 4%. What was my salary before the increase?

**Working:** Note the words “was” and “before”.

$$x \xrightarrow[\times 1.04]{+4\%} 24960$$

$$x \times 1.04 = 24960$$

$$x = \frac{24960}{1.04} = 24000$$

My salary before the increase was £24000.

### Exercise

[Y8 Mixed percentages](#) worksheet

[Y8 Mixed percentages ANSWERS](#)