

Finding Percentages of Quantities

Starter

1. **(Review of last lesson)** Convert $\frac{5}{12}$ to a percentage.

Working: $\frac{5}{12} \times 100 = 5 \times \frac{100}{12} = 5 \times \frac{25}{3} = \frac{125}{3} = 41\frac{2}{3}\%$

2. **(Review of last lesson)** Convert 36% to a fraction.

Working: $36\% = \frac{36}{100} = \frac{9}{25}$

3. Find: (a) $\frac{3}{4}$ of £36 (b) $\frac{2}{3}$ of 72 kg

Working: (a) $\frac{3}{4}$ of 36 = $\frac{3}{4} \times 36 = \frac{3}{1} \times 9 = \text{£}27$

(b) $\frac{2}{3}$ of 72 = $\frac{2}{3} \times 72 = \frac{2}{1} \times 24 = 48 \text{ kg}$

4. Complete this table of common percentages and their fraction equivalents.

Percentage	20%	25%	$33\frac{1}{3}\%$	40%	50%	60%	$66\frac{2}{3}\%$	75%	80%
Fraction									

Working:

Percentage	20%	25%	$33\frac{1}{3}\%$	40%	50%	60%	$66\frac{2}{3}\%$	75%	80%
Fraction	$\frac{1}{5}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{2}{5}$	$\frac{1}{2}$	$\frac{3}{5}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{4}{5}$

E.g. 1 Write down which method you would choose to do the following and show the calculation:

- (a) Find 24% of 80. (b) Find 16.3% of 18796 m. (c) Find 75% of 24.

Working: (a) Chunking
 (b) Decimal multiplier
 (c) Fractional multiplier — 75% is an easy fraction to remember

E.g. 2 Use the decimal multiplier method with your calculator to find:
(a) 23 % of 75 kg (b) 6 % of 196 m (c) 2.9 % of £250

Working: (a) 23 % of 75 = $0.23 \times 75 = 17.25$ kg
(b) 6 % of 196 = $0.06 \times 196 = 11.76$ m
(c) 2.9 % of 250 = $0.029 \times 250 = £7.25$

E.g. 3 One day after buying a car, it loses 18% of its value. How much do you lose on a car costing £12000?

Working: 10 % of 12000 = 1200
1 % of 12000 = 120
8 % of 12000 = $8 \times 120 = 960$
18 % of 12000 = $1200 + 960 = £2160$

E.g. 4 In a sale, a cd player was reduced by 25%. If its old price was £48, how much do you save?

Working: $25\% = \frac{1}{4}$
 $\frac{1}{4}$ of 48 = £12

E.g. 5 What percentage of a quantity doubles its amount?

Working: 200% of the quantity

E.g. 6 Show by calculation that 40 % of 70 \equiv 70 % of 40. Write down other equivalent calculations.

Working: 40 % of 70 = $0.4 \times 70 = 4 \times 7 = 28$
70 % of 40 = $0.7 \times 40 = 7 \times 4 = 28$
(e.g. 84% of 50 \equiv 50% of 84 = 42)

Video: [Percentage of an amount \(non-calc\)](#)
Video: [Percentage of an amount \(calc\)](#)

[Solutions to Starter and E.g.s](#)

Exercise

p156 Ex 9.4 Qu 1ace..., 2ace, 3-10 (non-calculator - fractional multiplier or chunking method)

[Textbook answers \(only available during a lockdown\)](#)