

"Number" Quick Reference

To make a fraction:

Rewrite the question to be "X out of Y". Make sure the bottom line is the total.

The calculator will simplify

$$15 \text{ out of } 20 = \frac{15}{20} = \frac{3}{4}$$

To make a percentage

Rewrite the question to be "X out of the total", convert to a fraction, decimalise, then $\times 100\%$

$$5 \text{ out of } 8 = \frac{5}{8} = 5 \div 8 = 0.625 = \frac{62.5}{100} = 62.5\%$$

To find a fraction of an amount:

Multiply by that fraction

$$\text{three-quarters of } 40 = \frac{3}{4} \times 40 = 30$$

To find a percentage of an amount

Multiply by that percentage – as a fraction out of 100.

$$75\% \text{ of } 40 = \frac{75}{100} \times 40 = 30$$

To convert between units

Find the conversion factor for 1 of the units.

Multiply or divide depending on whether you need a bigger or small number of the other unit.

$$\begin{array}{c} \text{---} \times 1000 \text{---} \\ \text{1 kilogram} = 1,000 \text{ grams} \\ \text{---} \div 1000 \text{---} \end{array}$$

Simplifying a Ratio:

Divide both sides by the same number until there are no more common factors

$$18 : 29 = 6 : 9 = 2 : 3$$

You can work the other way too by multiplying by a common factor

$$4 : 5 = 400 : 500 \text{ etc}$$

Splitting Ratios:

With ratios find how large each "part" is, and then multiply up by the number of parts

$$2 : 3 = 2 \text{ parts out of every } 5 (2 + 3) \text{ and } 3 \text{ parts out of every } 5 (2 + 3)$$

$$\text{so splitting } 75 \text{ in the ratio } 2 : 3 \text{ is } = \frac{2}{5} \times 75 : \frac{3}{5} \times 75 = 30 : 45$$
