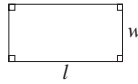


# Facts to Remember

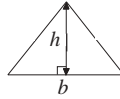
**Unit 7** Square: Area =  $x^2$



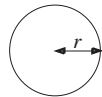
Rectangle: Area =  $lw$



Triangle: Area =  $\frac{1}{2}bh$

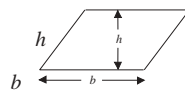


Circle: Area =  $\pi r^2$

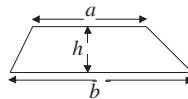


Circumference =  $2\pi r$

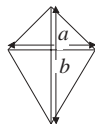
Parallelogram: Area =  $bh$



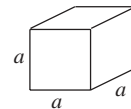
Trapezium: Area =  $\frac{1}{2}(a+b)h$



Kite: Area =  $\frac{1}{2}ab$

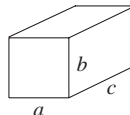


Cube: Volume =  $a^3$



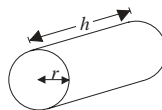
Surface area =  $6a^2$

Cuboid: Volume =  $abc$



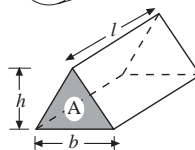
Surface area =  $2(ab + bc + ca)$

Cylinder: Volume =  $\pi r^2 h$

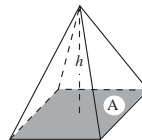


Surface area =  $2\pi r^2 + 2\pi rh$

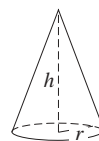
Prism: Volume =  $Al$



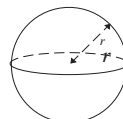
Pyramid: Volume =  $\frac{1}{3}Ah$



Cone: Volume =  $\frac{1}{3}\pi r^2 h$



Sphere: Volume =  $\frac{4}{3}\pi r^3$



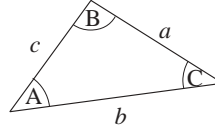
Surface area =  $4\pi r^2$

$$\text{Mass} = \text{Volume} \times \text{Density} \text{ or } \text{Volume} = \frac{\text{Mass}}{\text{Density}}$$

$$\text{or Density} = \frac{\text{Mass}}{\text{Volume}}$$

For any triangle

$$\text{Area} = \frac{1}{2} ab \sin C$$



and

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)} \quad \text{where } s = \frac{1}{2}(a+b+c)$$

## Units 8/9

The *mean* of a set of  $n$  numbers,  $x_1, x_2, \dots, x_n$  is given by

$$\text{mean} = \frac{x_1 + x_2 + \dots + x_n}{n}$$

The *median* of a set of numbers is the middle number when they have been put in order.

The *mode* is the number which occurs most frequently.

The *range* is the difference between the smallest and the largest numbers.

The *inter-quartile range* contains the middle 50% of the number.

The *standard deviation* of a set of numbers is given by:

$$\text{s.d.} = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}} \quad \text{and} \quad \text{s.d.} = \sqrt{\frac{\sum_{i=1}^n x_i^2}{n} - \bar{x}^2} \quad \text{where } \bar{x} \text{ is the mean.}$$

## Unit 10 $(a-b)(a+b) = a^2 - b^2$

$$\text{If } ax^2 + bx + c = 0, \text{ then } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

**Unit 11** Equivalent fractions, decimals and percentages.

Fractions	Decimals	Percentages
$\frac{1}{10}$	0.1	10%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{3}$	$0.\dot{3}$	$33\frac{1}{3}\%$
$\frac{1}{2}$	0.5	50%
$\frac{2}{3}$	$0.\dot{6}$	$66\frac{2}{3}\%$
$\frac{3}{4}$	0.75	75%
1	1.0	100%

$$\text{Percentage increase} = \frac{\text{actual increase}}{\text{initial value}} \times 100\%$$

$$\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d} \qquad \frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c}$$

$$\text{For compound interest } A_n = \left(1 + \frac{r}{100}\right)^n A_0$$

**Unit 12** A linear sequence is of the form:

$$u_n = dn + c \qquad n = 1, 2, 3, \dots \quad (d \text{ and } c \text{ are constants})$$

A quadratic sequence is of the form:

$$u_n = an^2 + bn + c \qquad n = 1, 2, 3, \dots \quad (a, b \text{ and } c \text{ are constants})$$