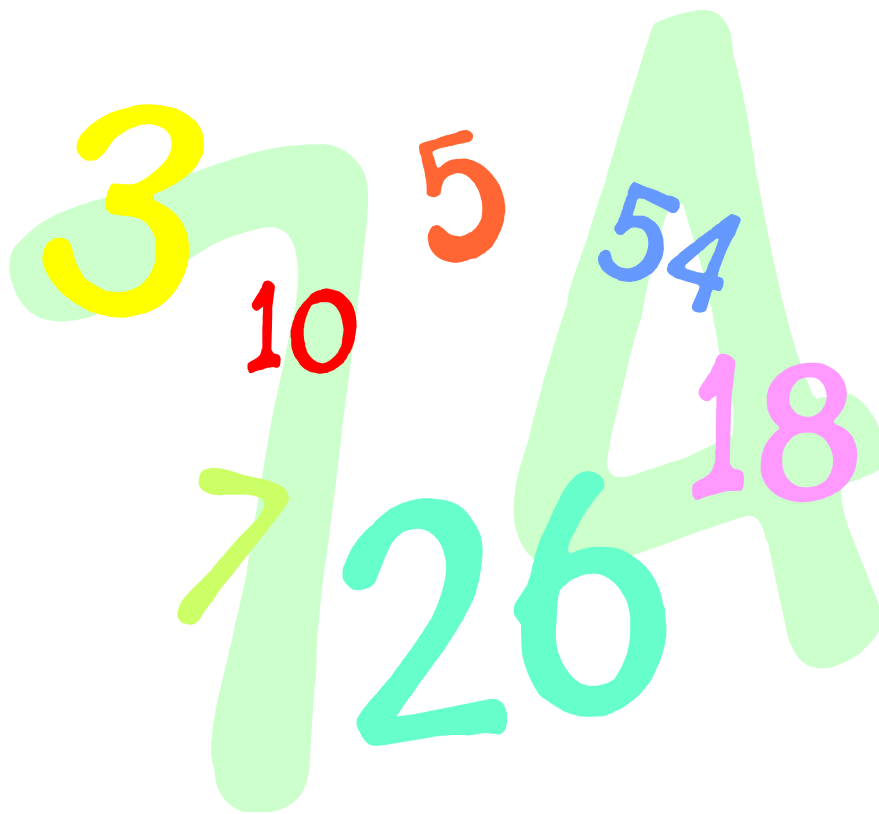


Maths

Higher Tier

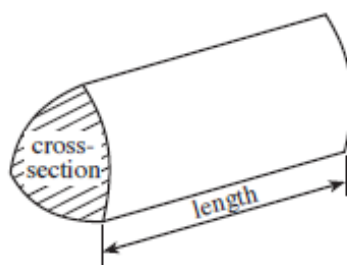


Shape Revision

Missing Angles

Formula List

Volume of prism = area of cross-section $\times$ length



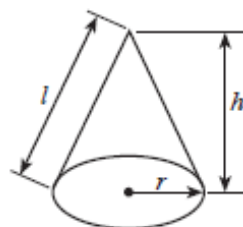
Volume of sphere = $\frac{4}{3} \pi r^3$

Surface area of sphere = $4\pi r^2$



Volume of cone = $\frac{1}{3} \pi r^2 h$

Curved surface area of cone = $\pi r l$

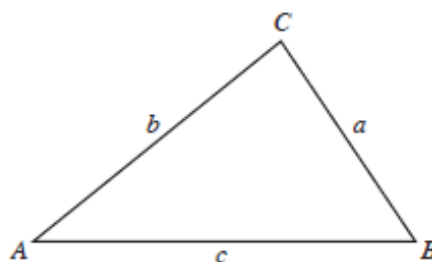


In any triangle ABC

Sine rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine rule $a^2 = b^2 + c^2 - 2bc \cos A$

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



The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$

where $a \neq 0$ are given by

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Standard Deviation

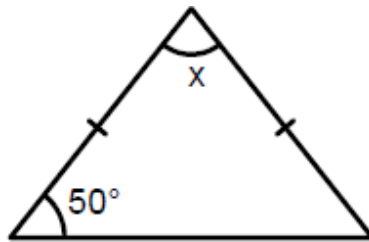
Standard deviation for a set of numbers

$x_1, x_2, \dots, x_n$, having a mean of $\bar{x}$ is given by

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n}} \text{ or } s = \sqrt{\frac{\sum x^2}{n} - \left\{ \frac{\sum x}{n} \right\}^2}$$

1. Find the value of the angle marked x in each diagram.

(a)



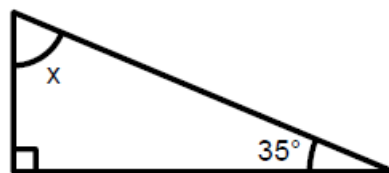
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(b)



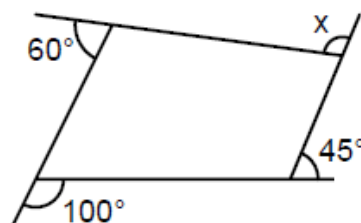
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(c)



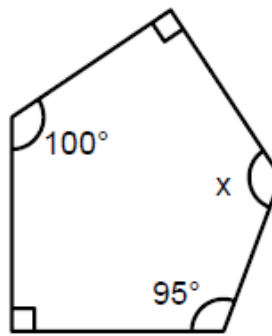
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(d)



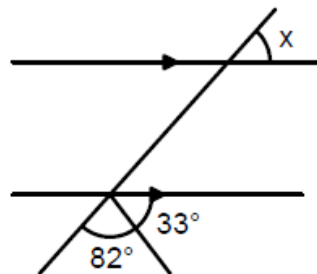
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(e)



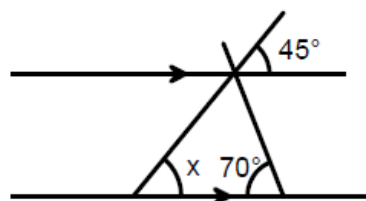
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(f)



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2. Calculate an exterior angle of a regular octagon



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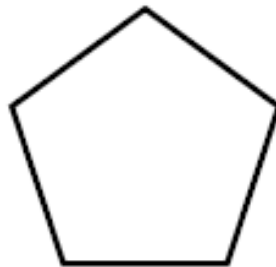
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3. Calculate an interior angle of a regular pentagon



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