

Syllabus reference 1MA1/3H
Pearson Edexcel GCSE (9–1)
Mathematics

Mathematics
PAPER 3 (Calculator)
Higher Tier

Monday 13 November 2023 – Morning

Higher Tier

Formulae Sheet

**DO NOT RETURN THIS
FORMULAE SHEET WITH THE
QUESTION PAPER.**

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Higher Tier Formulae Sheet

Perimeter, area and volume

Where **a** and **b** are the lengths of the parallel sides and **h** is their perpendicular separation:

$$\text{Area of a trapezium} = \frac{1}{2}(a + b)h$$

Volume of a prism =
area of cross section \times length

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Perimeter, area and volume continued.

Where r is the radius and d is the diameter:

Circumference of a circle = $2\pi r = \pi d$

Area of a circle = πr^2

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Quadratic formula

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

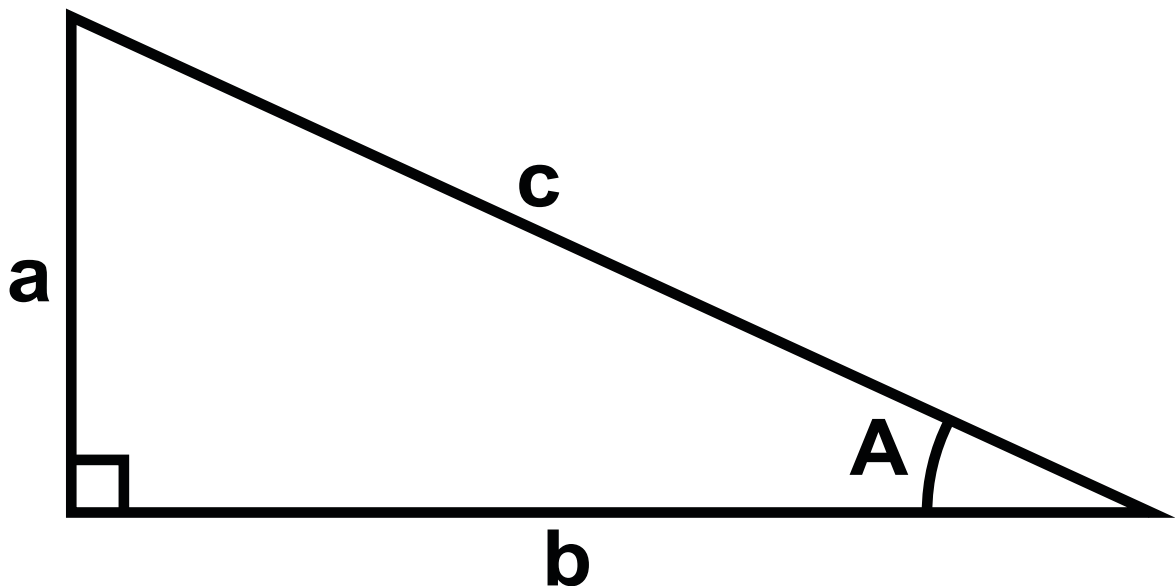
where $a \neq 0$

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

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Pythagoras' Theorem and Trigonometry



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Pythagoras' Theorem and Trigonometry continued.

In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a , b and c are the length of the sides and c is the hypotenuse:

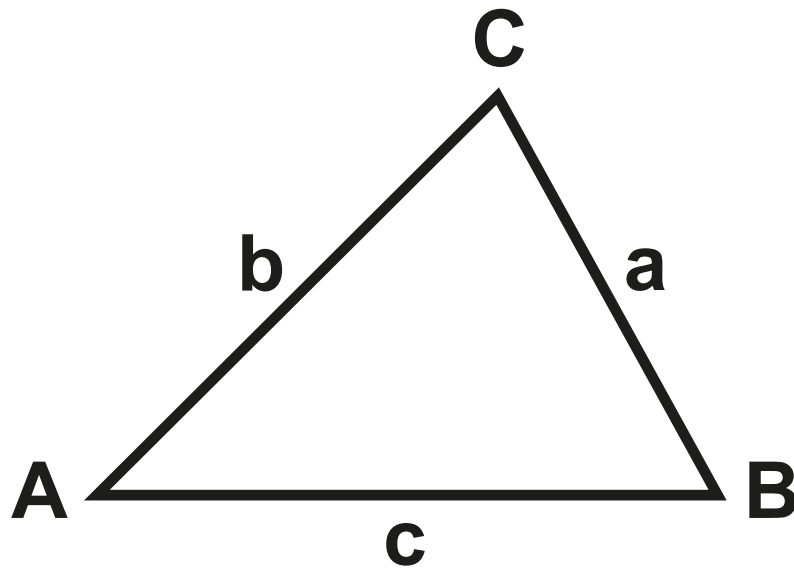
$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

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Pythagoras' Theorem and Trigonometry continued.



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Pythagoras' Theorem and Trigonometry continued.

In any triangle ABC where a , b and c are the length of the sides:

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 = $\frac{1}{2} a b \sin C$

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Compound Interest

Where **P** is the principal amount, **r** is the interest rate over a given period and **n** is number of times that the interest is compounded:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

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Probability

Where $P(A)$ is the probability of outcome **A** and $P(B)$ is the probability of outcome **B**:

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$

END OF EXAM AID
