

**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.**

**V69535A**

# 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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Turn over

# Higher Tier Formulae Sheet

**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 =  $\pi r^2$**

**Turn over**

# Higher Tier Formulae Sheet

## Quadratic formula

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

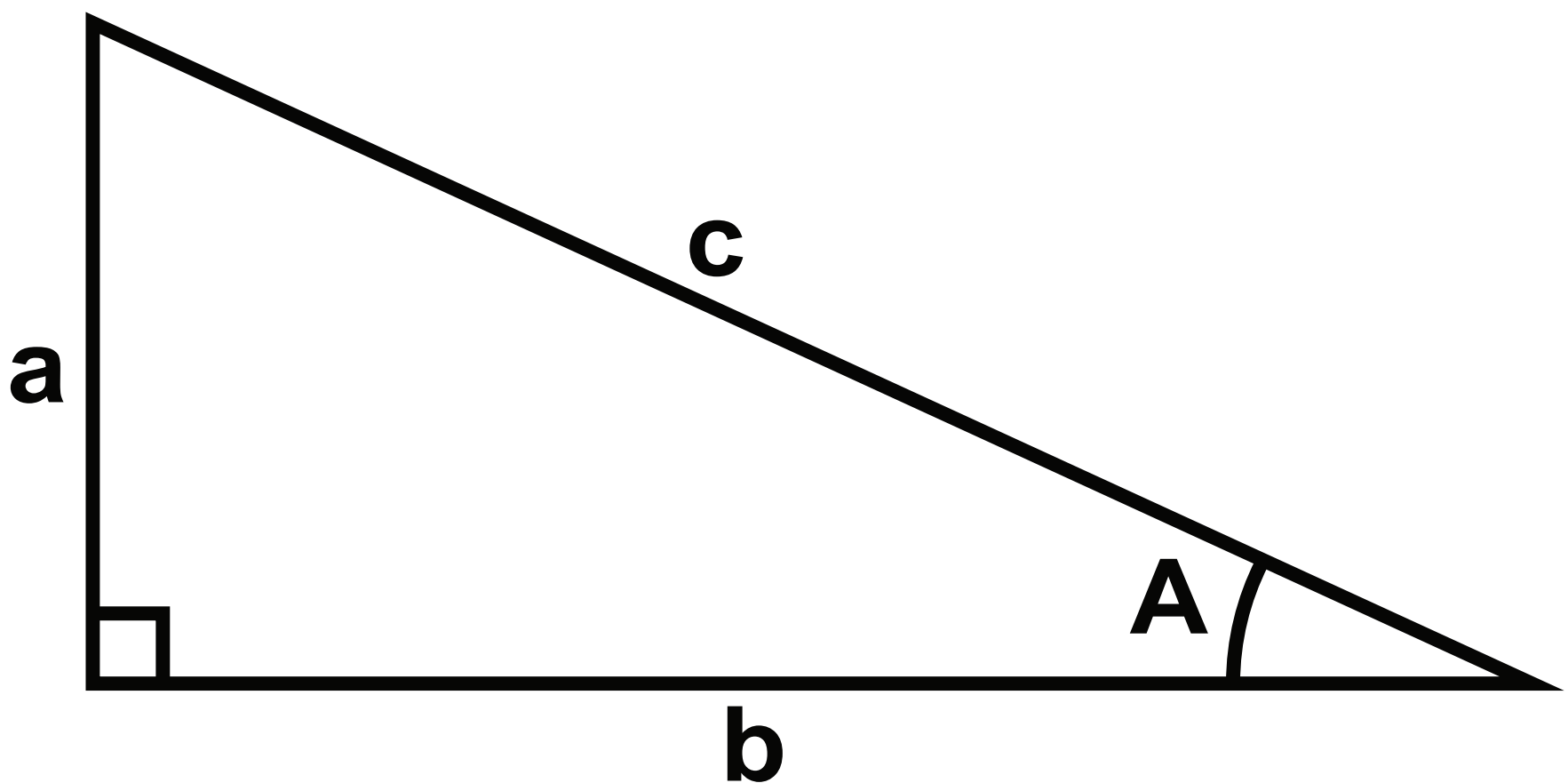
where  $a \neq 0$

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

Turn over

# Higher Tier Formulae Sheet

## Pythagoras' Theorem and Trigonometry



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Turn over

# Higher Tier Formulae Sheet

**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:**

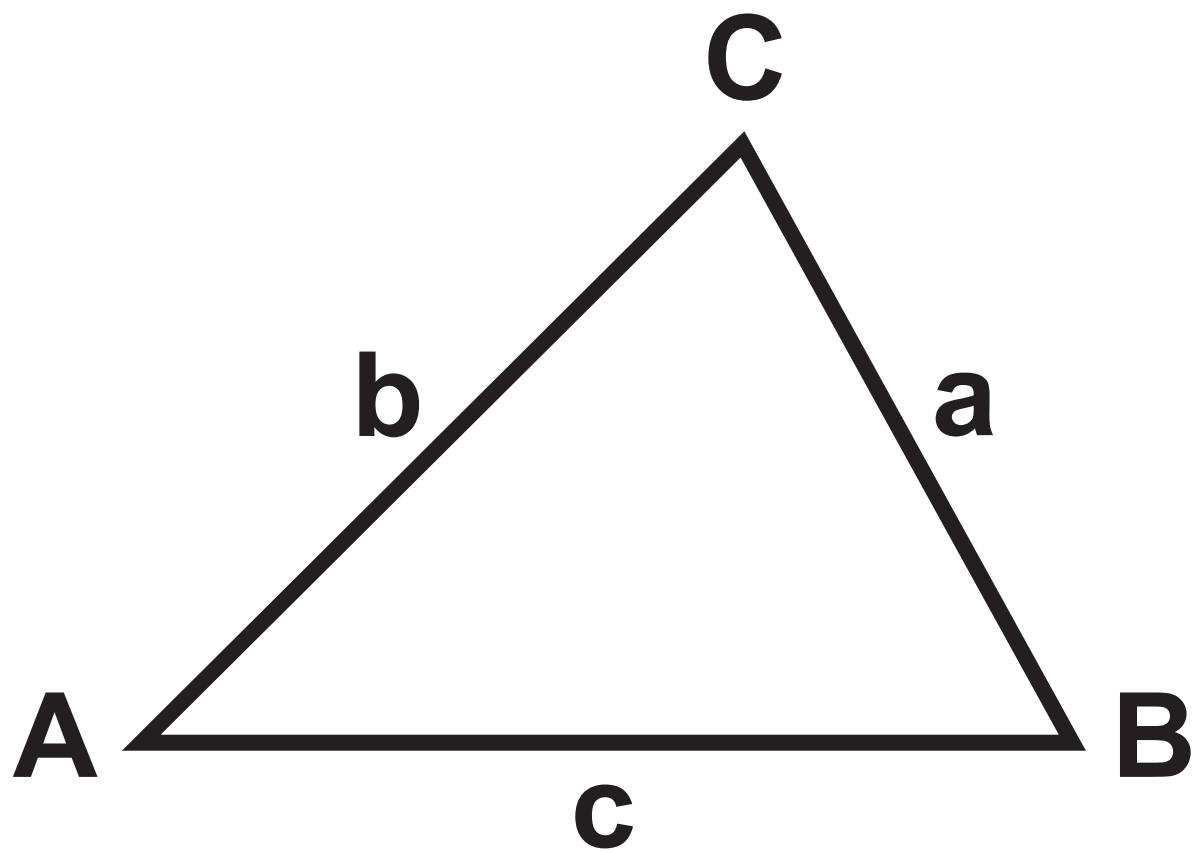
$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

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**Turn over**

# Higher Tier Formulae Sheet

**Pythagoras' Theorem and Trigonometry  
continued.**



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**Turn over**

# Higher Tier Formulae Sheet

**Pythagoras' Theorem and Trigonometry  
continued.**

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

$$\text{sine rule: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{cosine rule: } a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area of triangle} = \frac{1}{2} a b \sin C$$

**Turn over**



# Higher Tier Formulae Sheet

## 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:

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

Turn over

# Higher Tier Formulae Sheet

## Probability

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

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

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

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**END OF EXAM AID**

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