Level 2 Certificate

FURTHER MATHEMATICS

Formulae Sheet

8365

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FOR EXAMS IN JUNE 2024 ONLY

[Turn over]

PERIMETER, AREA AND VOLUME

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

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

Volume of a prism =
area of cross section × length

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

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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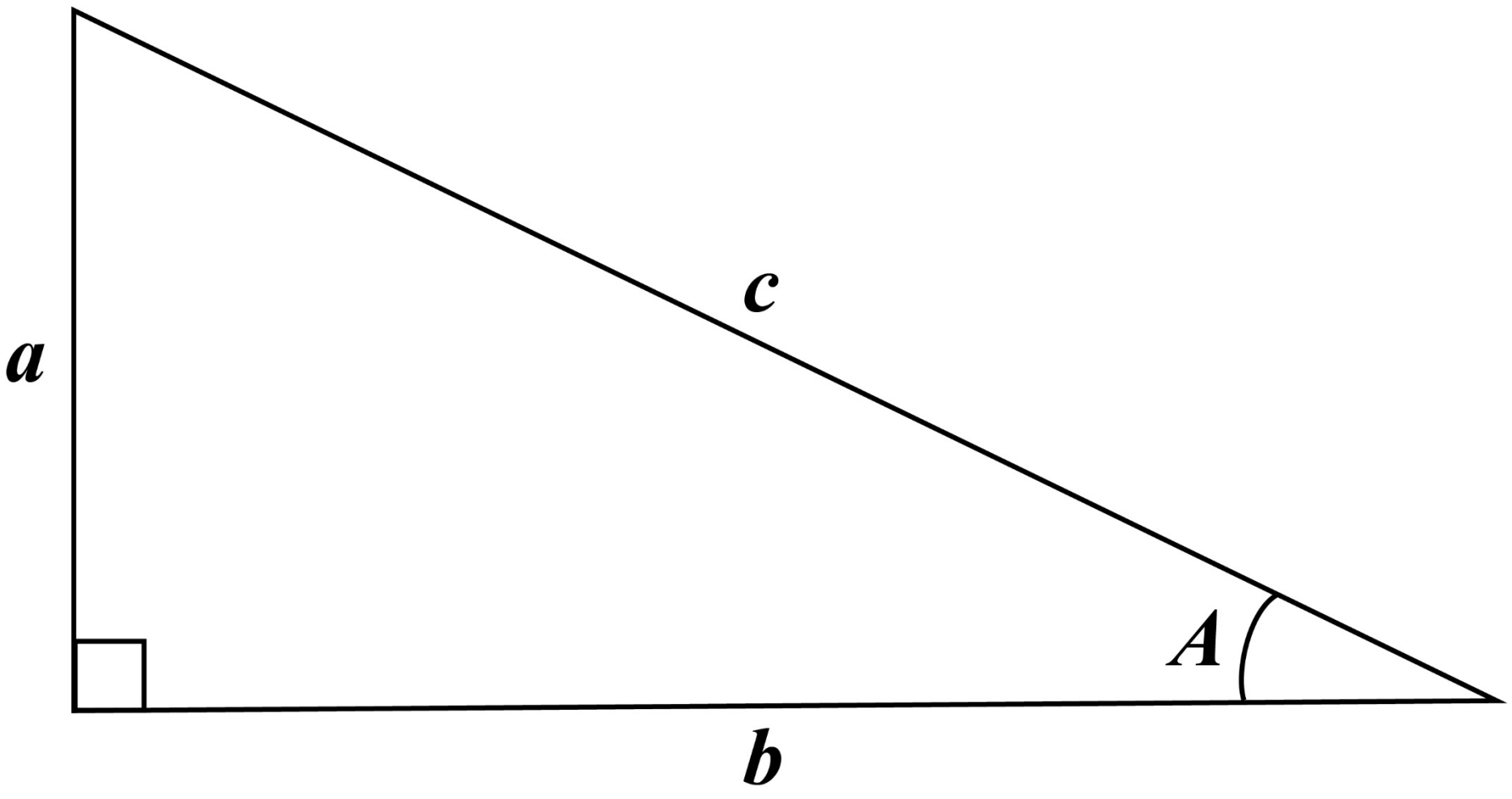
PYTHAGORAS' THEOREM AND TRIGONOMETRY



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:

$$\sin A = \frac{a}{c}$$

$$\cos A = \frac{b}{c}$$

$$\tan A = \frac{a}{b}$$

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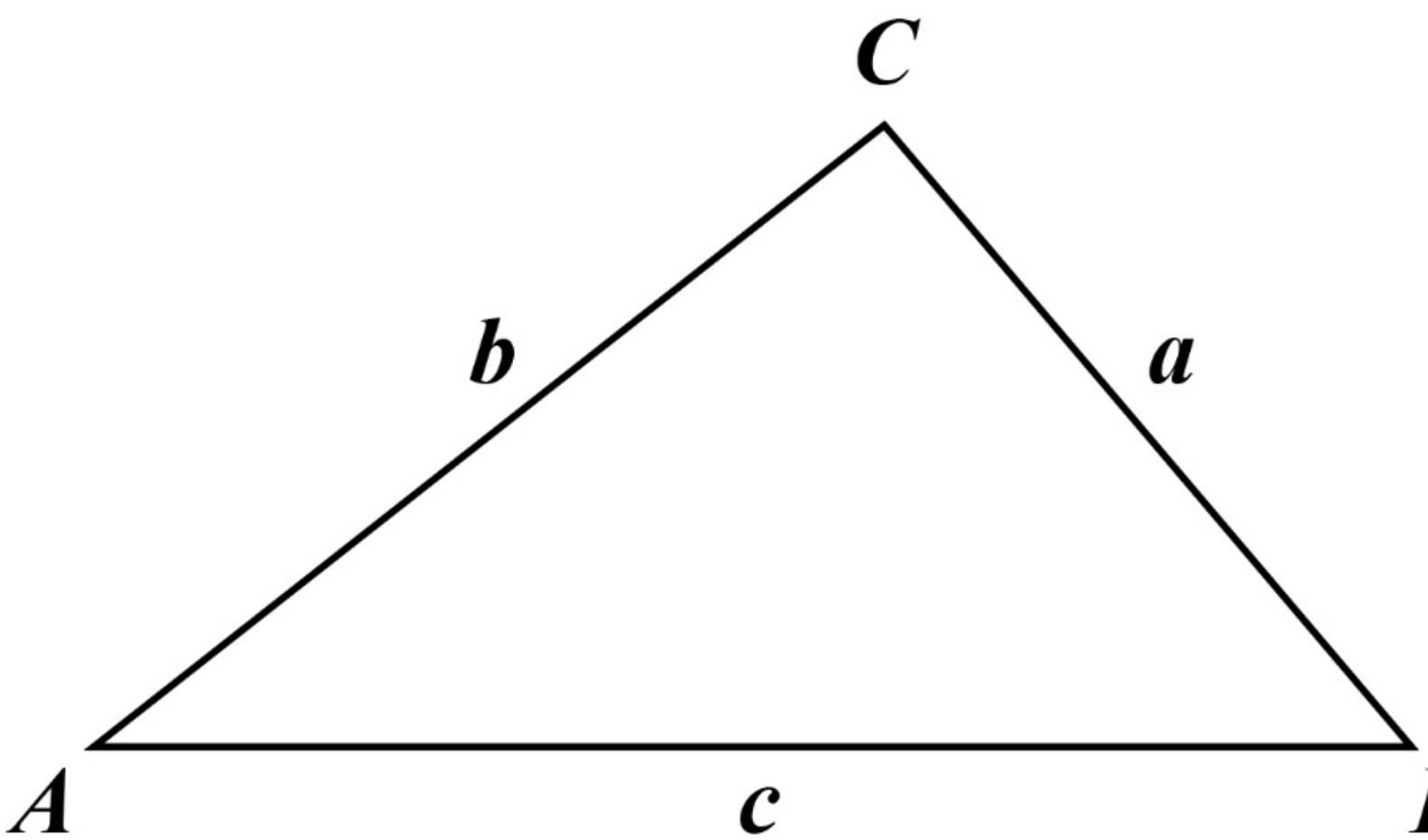

In any triangle ABC where a, b and c are the length of the sides:

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

For any angle θ $\tan\theta = \frac{\sin\theta}{\cos\theta}$

and $\sin^2\theta + \cos^2\theta = 1$

COORDINATE GEOMETRY

Equation of a straight line passing through (x_1, y_1) with gradient m

$$y - y_1 = m(x - x_1)$$

The general equation of a circle, centre (a, b), radius r

$$(x - a)^2 + (y - b)^2 = r^2$$

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