



Right Angled Triangle 1



For a right-angled triangle, using the notation of **Figure 1**, find the length of the hypotenuse c in the following cases:

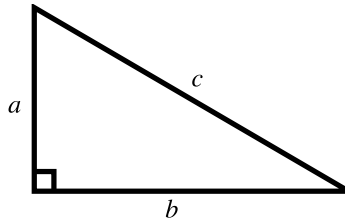


Figure 1: This figure shows a right-angled triangle, with the angle $C = 90^\circ$.

Part A Pythagoras 1

When $a = 3$ cm, $b = 4$ cm.

Part B Pythagoras 2

When $a = 5.0$ cm, $b = 12$ cm.

Part C Pythagoras 3

Finally, when $a = b = 3.00$ cm.



Exact Values of Angles 2



For the range $0 \leq \theta \leq 360^\circ$, write down all the values of θ which have the following: (a) $\cos \theta = -1/2$, (b) $\cos \theta = 1/\sqrt{2}$.

- ☐ (a) 45° , 315° , (b) 60° , 300°
- ☐ (a) 120° , 240° , (b) 45° , 225°
- ☐ (a) 60° , 120° , (b) 45° , 315°
- ☐ (a) 45° , 135° , (b) 60° , 300°
- ☐ (a) 120° , 240° , (b) 45° , 315°



Exact Values of Angles 1



For the range $0 \leq \theta \leq 360^\circ$, write down all the values of θ which have the following: (a) $\sin \theta = \sqrt{3}/2$, (b) $\sin \theta = -1/2$.

- ☐ (a) 30° , 150° , (b) 210° , 330°
- ☐ (a) 60° , 120° , (b) 210° , 330°
- ☐ (a) 30° , 150° , (b) 240° , 300°
- ☐ (a) 60° , 300° , (b) 150° , 330°
- ☐ (a) 60° , 120° , (b) 240° , 300°



Equilateral Triangle 1



An equilateral triangle has a perpendicular height of 2.00 cm.

Part A Length of sides

Find the length of the sides.

Part B Area of triangle

What is the area of the triangle?

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Relations between Angles 1



In **Figure 1**, OA and OB are radii of the circle centred at O, and the line EC is the tangent to the circle at B. What are the following angles in terms of the angle θ ? (If, as well as the angle θ , the answer includes an angle in degrees (e.g. $90^\circ + \theta$), give the answer as $90 + \theta$ (i.e. omit the degrees symbol).

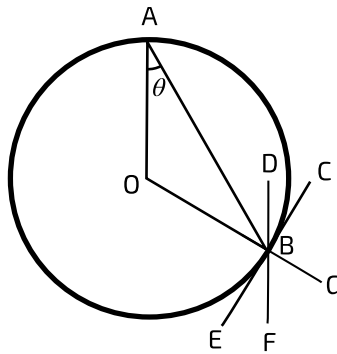


Figure 1

The figure shows a circle; OA and OB are radii of the circle, centred at O, and the line EC is the tangent to the circle at B. DF is parallel to OA, passing through B.

Part A Angle OBA

What is the angle OBA?

The following symbols may be useful: theta

Part B Angle ABD

What is the angle ABD?

The following symbols may be useful: theta

Part C Angle FBG

What is the angle FBG?

The following symbols may be useful: θ , θ_a

Part D Angle EBF

What is the angle EBF?

The following symbols may be useful: π , θ

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Area of Triangle 1

Figure 1 shows a triangle of side lengths a , b and c with angles A , B and C .

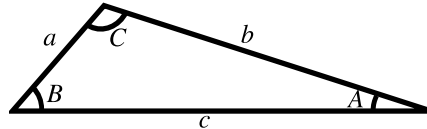


Figure 1: A diagram showing the labelling of a triangle with sides a , b and c and opposite angles A , B and C .

Part A Area of a triangle

Find the area of a triangle with $a = 10 \text{ mm}$, $b = 4.0 \text{ mm}$ and $C = 70^\circ$.

Part B Angle C

Find also the angle C if the area of the triangle is 15.0 mm^2 , $a = 10.0 \text{ mm}$ and $b = 4.00 \text{ mm}$.



Values of Angles 1



For the range $-180^\circ \leq \alpha \leq 180^\circ$, consider all the values of α which satisfy $\sin \alpha = 0.2$.

Part A Values of α

How many values of α , satisfying the equation, are in this range?

Part B Largest value of α

What is the largest positive value of α satisfying the equation in this range? Give your answer to 3.s.f.



Values of Angles 2



For the range $-180^\circ \leq \beta \leq 180^\circ$, consider all the values of β which satisfy $\sin(2\beta) = -0.4$.

Part A Values of β

How many values of β , satisfying the equation, are in this range?

Part B Smallest positive value of β

What is the smallest positive value of β in this range? Give your answer to 3.s.f.



Sine and Cosine Rules 1



Figure 1 shows a triangle of side lengths a , b and c .

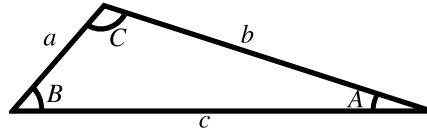


Figure 1: A diagram showing the labelling of a triangle with sides a , b and c and opposite angles A , B and C .

Part A Angle A

Find the angle A if $a = 10.0$ mm, $b = 14.0$ mm and $B = 65.0^\circ$.

Part B Length c

Find the length c if $a = 10.0$ mm, $b = 6.00$ mm and $C = 40.0^\circ$.



Angles in Triangles 1



Figure 1 shows a triangle of side lengths a , b and c with angles A , B and C .

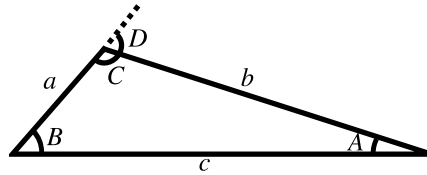


Figure 1: A diagram showing the labelling of a triangle with sides a , b and c and opposite angles A , B and C ; the angle D is one of the external angles.

Part A Angle A

Find the angle A if $B = 30^\circ$ and $C = 70^\circ$.

Part B Angle D

Find the angle D if $A = 40^\circ$ and $B = 60^\circ$.
