

Exact Trig Values - Higher

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **28**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. Do **not** use a calculator.

1 Circle the value of $\tan 60^\circ$

[1 mark]

$\frac{\sqrt{3}}{3}$

$\frac{\sqrt{3}}{2}$

1

$\sqrt{3}$

2 Work out the exact value of

(a) $6 \cos 30^\circ$

[2 marks]

Answer _____

(b) $\sin 45^\circ \times \cos 45^\circ$

[2 marks]

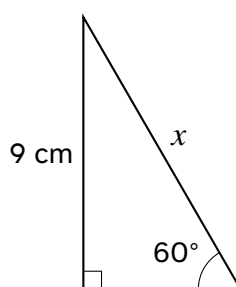
Answer _____

- 3 Write $\frac{3}{\sin 60^\circ}$ in the form $a\sqrt{3}$, where a is an integer.

[2 marks]

Answer _____

- 4 Here is a right-angled triangle.



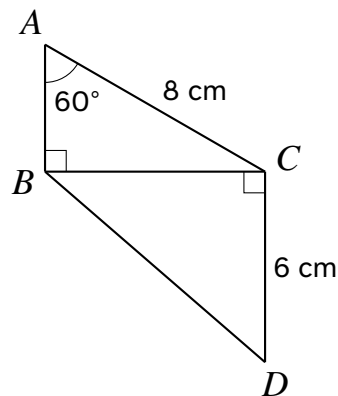
Not drawn accurately

Work out the length x .
Give your answer in the form $a\sqrt{3}$

[3 marks]

$x =$ _____ cm

- 5 ABC and BCD are right-angled triangles.



Not drawn accurately

$AC = 8$ cm and $CD = 6$ cm

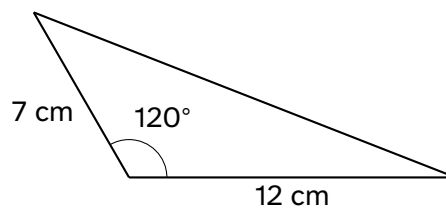
Work out the length of BD .

Give your answer in the form $a\sqrt{b}$, where a and b are integers greater than 1

[4 marks]

Answer _____ cm

- 6 Here is a triangle.



Not drawn accurately

Show that the area of the triangle is $21\sqrt{3}$ cm²

[3 marks]

- 7 Work out the exact value of
 $(\tan 30^\circ + \tan 60^\circ) \times \sin 45^\circ$
Give your answer in the form $\frac{a\sqrt{b}}{c}$, where a , b and c are integers.

[3 marks]

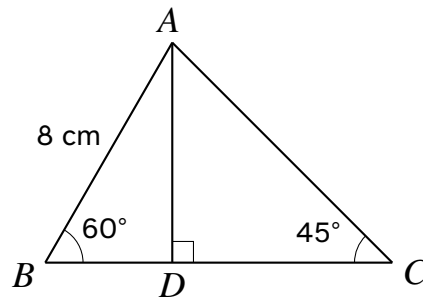
Answer _____

- 8 y is an acute angle.
 $4 \cos y \times \tan 60^\circ = 6 \tan 45^\circ$
Work out the value of y .
You must show your working.

[3 marks]

Answer _____ degrees

9 Here is triangle ABC .



Not drawn accurately

D is a point on BC and AD is perpendicular to BC .
 $AB = 8\text{ cm}$, angle $ABC = 60^\circ$ and angle $ACB = 45^\circ$
Work out the area of triangle ABC .

Give your answer in the form $a + b\sqrt{3}$, where a and b are integers.

[5 marks]

Answer _____ cm^2