

AQA Level 2 Certificate

FURTHER MATHEMATICS

Level 2 (8365)

Worksheet 4

Trigonometry

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4 Trigonometry

Question 1 (non-calculator)

Work out the exact value of $\sin 60^\circ + \sin 120^\circ + \sin 270^\circ$.

Give your answer in its simplest form.

(3 marks)

Question 2 (non-calculator)

Are these statements true or false?

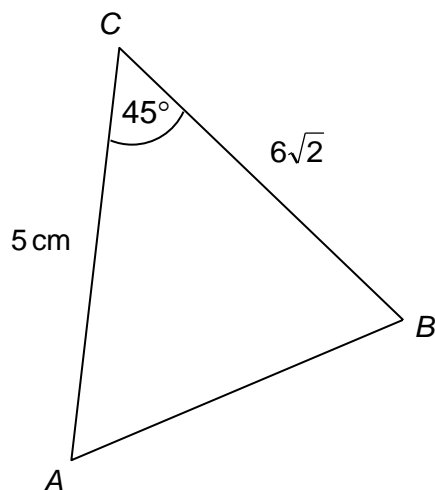
	True	False
$\sin 37^\circ = \sin 127^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
$\cos 54^\circ = \cos 306^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
$\sin 135^\circ = \cos 135^\circ$	<input type="checkbox"/>	<input type="checkbox"/>
$\tan 126^\circ = \tan 306^\circ$	<input type="checkbox"/>	<input type="checkbox"/>

(4 marks)

Question 3 (non-calculator)

Work out the area of triangle ABC .

Write your answer in its simplest form.



Not drawn accurately

(3 marks)

Question 4 (calculator or non-calculator)

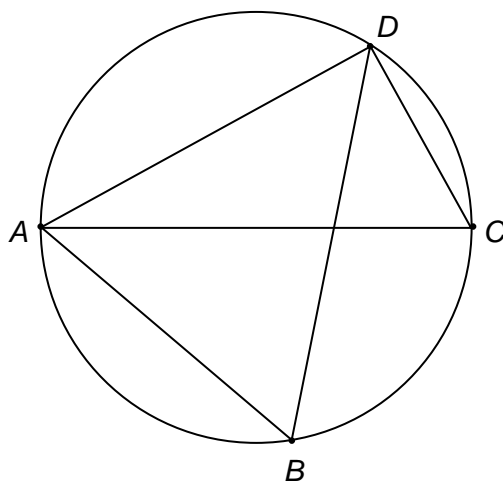
Show that $\tan^2 \theta \equiv \frac{1}{\cos^2 \theta} - 1$

(3 marks)

Question 5 (calculator)

AC is a diameter of the circle.

$AC = 5$ cm, $AD = 4$ cm



Not drawn accurately

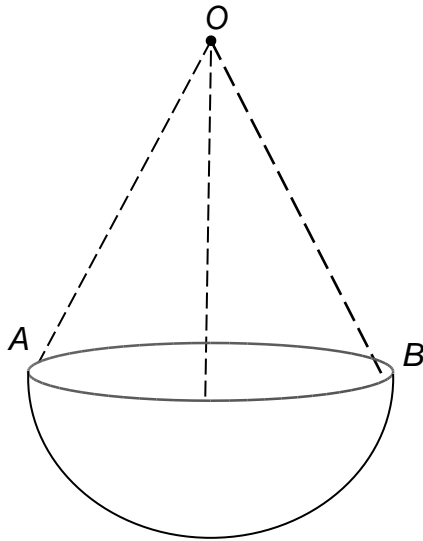
Work out angle ABD .

(4 marks)

Question 6 (calculator)

A hanging basket is made from a hemisphere and three chains.
The radius of the hemisphere is 10 cm.
Each chain is 30 cm long.
The chains are equally spaced around the rim of the hemisphere.

Work out angle AOB .



(5 marks)

Question 7 (calculator)

Solve the following equation for $0 < \theta < 360^\circ$.
 $\tan^2 \theta = 2$

(4 marks)

Question 8 (calculator)

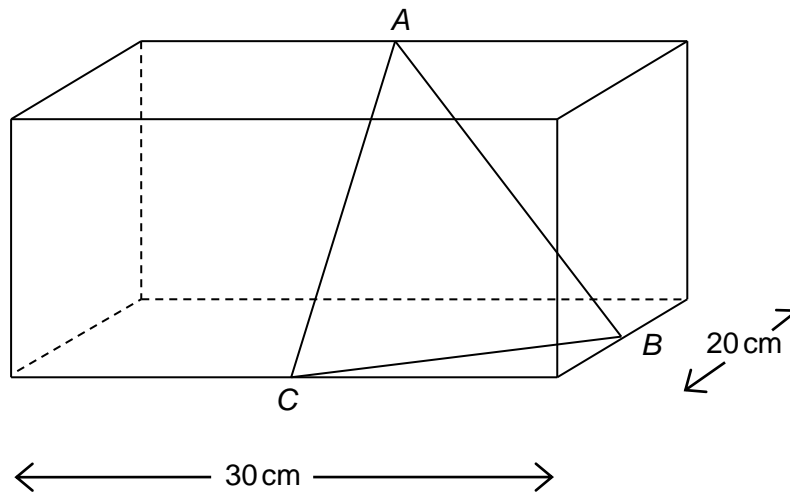
Solve the following equation for $0 < \theta < 360^\circ$.
 $3\cos^2 \theta + 2\cos \theta - 1 = 0$

(5 marks)

Question 9 (calculator)

A cuboid has length 30 cm and width 20 cm

A , B and C are midpoints of three of the edges.



(a) Work out the distance BC .

(2 marks)

(b) Given that $\text{angle } ACB = 59^\circ$ and $AB = 22$ cm
work out the size of angle CAB .

(3 marks)