

3D Pythagoras & Trigonometry

Question Paper 1

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Trigonometry
Sub-Topic	3D Pythagoras & Trigonometry
Booklet	Question Paper 1

Time Allowed: 63 minutes

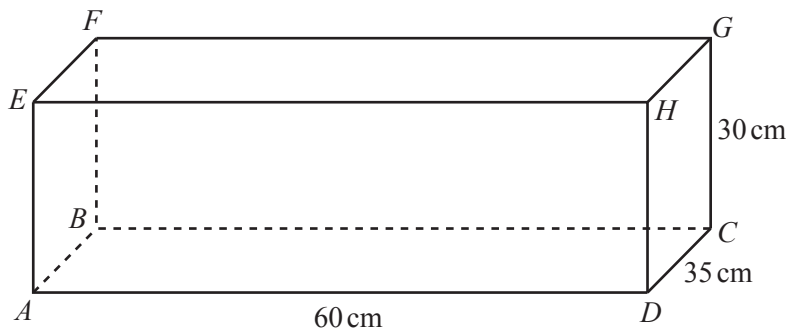
Score: /52

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1 The diagram shows a cuboid.



NOT TO SCALE

$AD = 60$ cm, $CD = 35$ cm and $CG = 30$ cm.

(a) Write down the number of planes of symmetry of this cuboid.

..... [1]

(b) (i) Work out the surface area of the cuboid.

..... cm^2 [3]

(ii) Write your answer to **part (b)(i)** in square metres.

..... m^2 [1]

(c) Calculate

(i) the length AG ,

$AG =$ cm [4]

(ii) the angle between AG and the base $ABCD$.

..... [3]

(d) (i) Show that the volume of the cuboid is $63\,000\text{ cm}^3$.

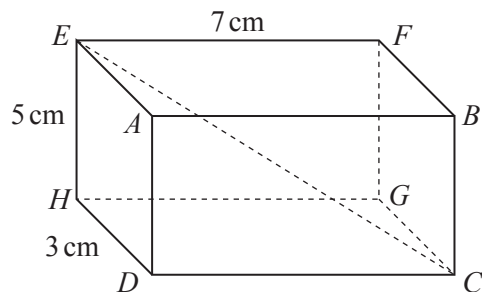
[1]

(ii) A cylinder of height 40 cm has the same volume as the cuboid.

Calculate the radius of the cylinder.

..... cm [3]

2



NOT TO SCALE

The diagram shows a cuboid.

$HD = 3$ cm, $EH = 5$ cm and $EF = 7$ cm.

Calculate

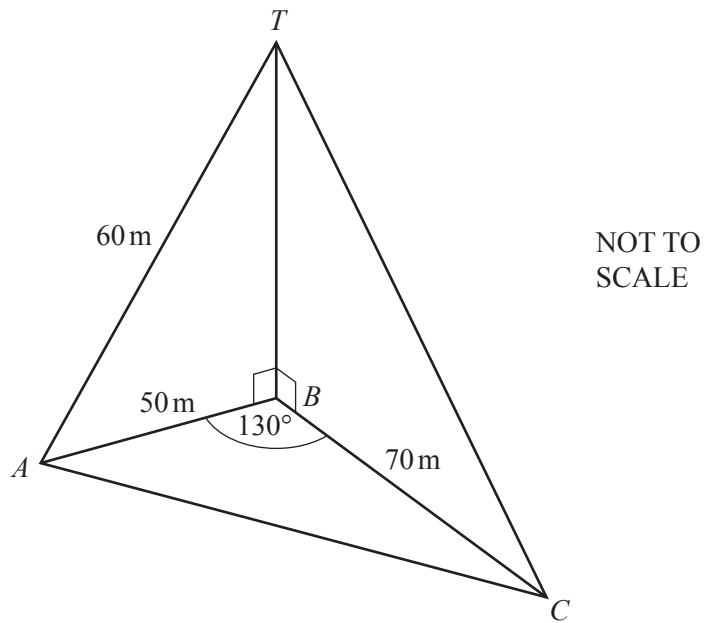
(a) the length CE ,

$CE = \dots\dots\dots$ cm [4]

(b) the angle between CE and the base $CDHG$.

$\dots\dots\dots$ [3]

3 (a)



A , B and C are points on horizontal ground.
 BT is a vertical pole.
 $AT = 60\text{ m}$, $AB = 50\text{ m}$, $BC = 70\text{ m}$ and angle $ABC = 130^\circ$.

(i) Calculate the angle of elevation of T from C .

Answer(a)(i) [5]

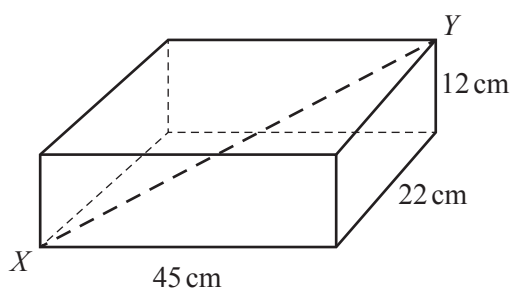
(ii) Calculate the length AC .

Answer(a)(ii) $AC =$ m [4]

(iii) Calculate the area of triangle ABC .

Answer(a)(iii) m^2 [2]

(b)



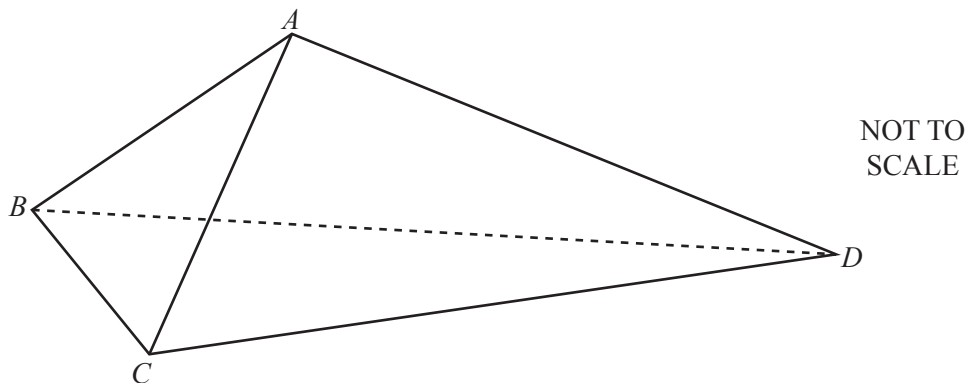
NOT TO
SCALE

A cuboid has length 45 cm, width 22 cm and height 12 cm.

Calculate the length of the straight line XY .

Answer(b) $XY =$ cm [4]

4



The diagram shows a tent $ABCD$.

The front of the tent is an isosceles triangle ABC , with $AB = AC$.

The sides of the tent are congruent triangles ABD and ACD .

- (a) $BC = 1.2$ m and angle $ABC = 68^\circ$.

Find AC .

Answer(a) $AC = \dots\dots\dots$ m [3]

- (b) $CD = 2.3$ m and $AD = 1.9$ m.

Find angle ADC .

Answer(b) Angle $ADC = \dots\dots\dots$ [4]

- (c) The floor of the tent, triangle BCD , is also an isosceles triangle with $BD = CD$.

Calculate the area of the floor of the tent.

Answer(c)m² [4]

- (d) When the tent is on horizontal ground, A is a vertical distance 1.25 m above the ground.

Calculate the angle between AD and the ground.

Answer(d) [3]