2D Pythagoras & Trigonometry (SOHCAHTOA)

Question Paper 3

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Trigonometry
Sub-Topic	2D Pythagoras & Trigonometry (SOHCAHTOA)
Booklet	Question Paper 3

Time Allowed: **54 minutes**

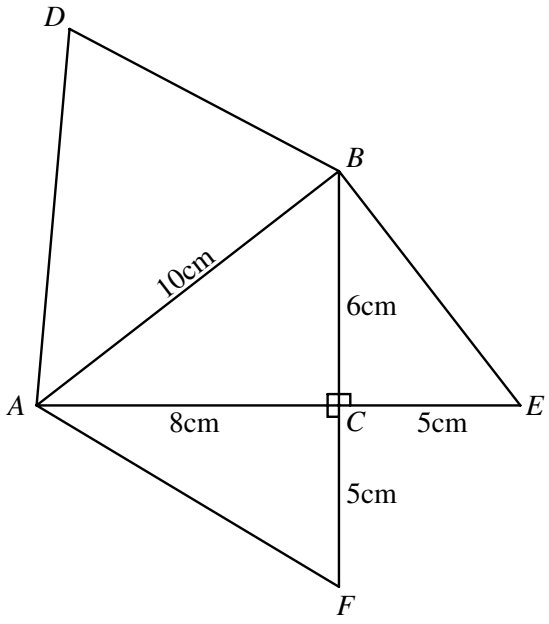
Score: **/45**

Percentage: **/100**

Grade Boundaries:

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

1



NOT TO SCALE

The diagram shows a sketch of the net of a solid tetrahedron (triangular prism).
The right-angled triangle ABC is its base.
$AC = 8$ cm, $BC = 6$ cm and $AB = 10$ cm. $FC = CE = 5$ cm.

(a) Show that $BE = \sqrt{61}$ cm. [1]

(ii) Write down the length of DB. [1]

(iii) Explain why $DA = \sqrt{89}$ cm. [2]

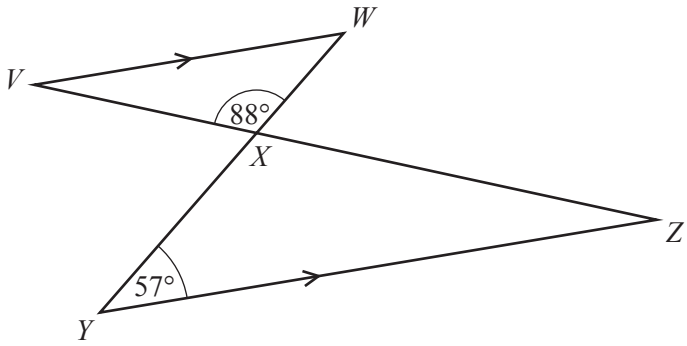
(b) **Calculate** the size of angle DBA. [4]

(c) Calculate the area of triangle DBA. [3]

(d) Find the total surface area of the solid. [3]

(e) Calculate the volume of the solid.
[The volume of a tetrahedron is $\frac{1}{3}$ (area of the base) × perpendicular height.] [3]

2 (a)



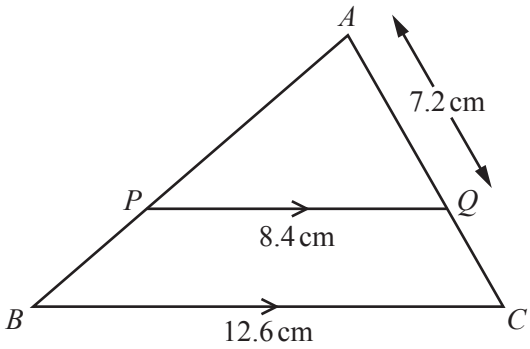
NOT TO SCALE

Two straight lines VZ and YW intersect at X.
VW is parallel to YZ, angle $XYZ = 57°$ and angle $VXW = 88°$.

Find angle WVX.

Answer(a) Angle WVX = ... [2]

(b)



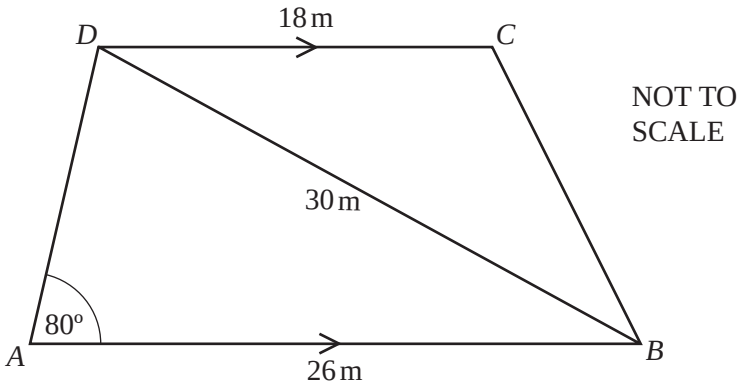
NOT TO SCALE

ABC is a triangle and PQ is parallel to BC.
$BC = 12.6$ cm, $PQ = 8.4$ cm and $AQ = 7.2$ cm.

Find AC.

Answer(b) AC = ... cm [2]

3



The diagram shows the plan of a garden.

The garden is a trapezium with $AB = 26$ metres, $DC = 18$ metres and angle $DAB = 80°$.

A straight path from B to D has a length of 30 metres.

(a) (i) Using a scale of 1 : 200, draw an **accurate** plan of the garden. [3]

(ii) **Measure** and write down the size of angle ADB and the size of angle DCB. [2

(iii) A second path is such that all points on it are equidistant from AB and from AD.

Using a straight edge and compasses only, construct this path on your plan. [2]

(iv) A third path is such that all points on it are equidistant from A and from D.

Using a straight edge and compasses only, construct this path on your plan. [2]

(v) In the garden, vegetables are grown in the region which is nearer to AB than to AD **and** nearer to A than to D.

Shade this region on your plan. [1]

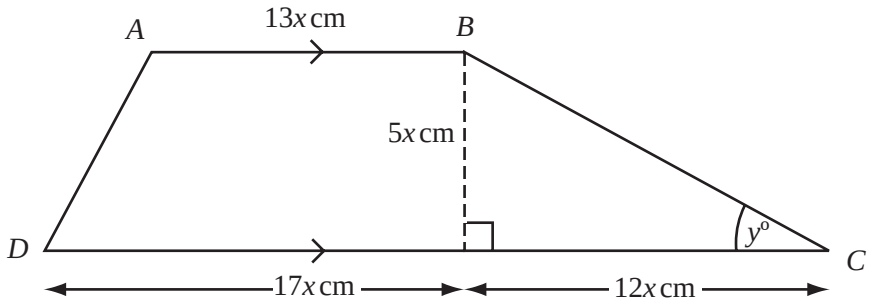
(b) **Use trigonometry**, showing all your working, to calculate

(i) angle ADB, [3]

(ii) the length of BC, [4

(iii) the area of the garden. [3]

4



NOT TO SCALE

ABCD is a trapezium.

(a) Find the area of the trapezium in terms of x and simplify your answer.

Answer(a) ..... cm^2 [2]

(b) Angle $BCD = y°$. Calculate the value of y.

Answer(b) $y =$ ..... [2]