Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Sine and Cosine Rules 1

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

Write your name in the space provided.

Write your answers in the spaces provided in this question paper.

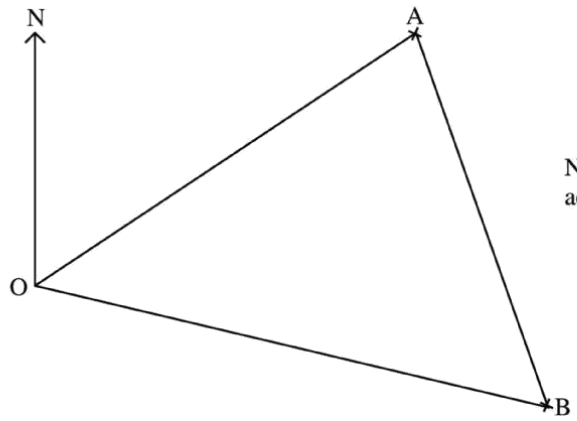
Answer ALL questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You should have a ruler, compass and protractor where required.

Total Marks :

1)



Not drawn accurately

Ship A is 28 km from O on a bearing of 041°.
Ship B is 36 km from O on a bearing of 121°.

(a) Calculate the distance between A and B.

Answer _____ km [3]

(b) Calculate the bearing of A from B.

Answer _____ ° [3]

2)

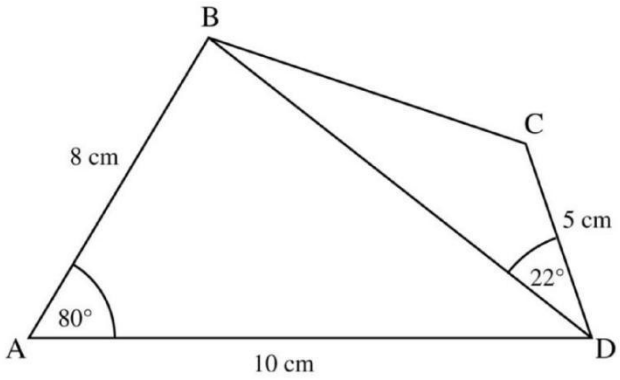


Diagram not drawn accurately

ABCD is a quadrilateral.
AB = 8 cm, AD = 10 cm, CD = 5 cm.
Angle BAD = 80° and angle BDC = 22°.

Calculate

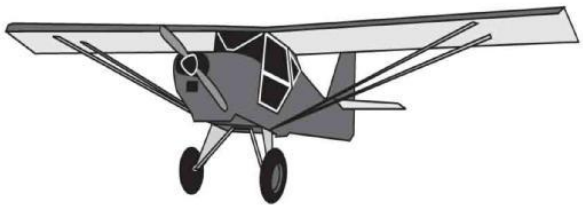
(a) the length of BD,

Answer _____ cm [3]

(b) the area of triangle BCD.

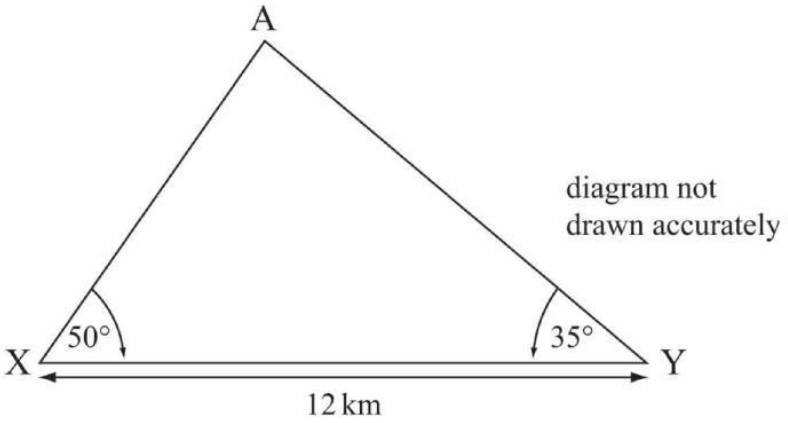
Answer _____ cm^2 [2]

3) A small aircraft, located at position A in the sketch diagram, develops an engine fault while flying between two landing strips located at positions X and Y in the diagram.



The angles from X and Y to the aircraft are 50° and 35° respectively. The aircraft must land as quickly as possible. How much closer is X than Y from A?

Show all working.



Answer _____ km [4]

4)

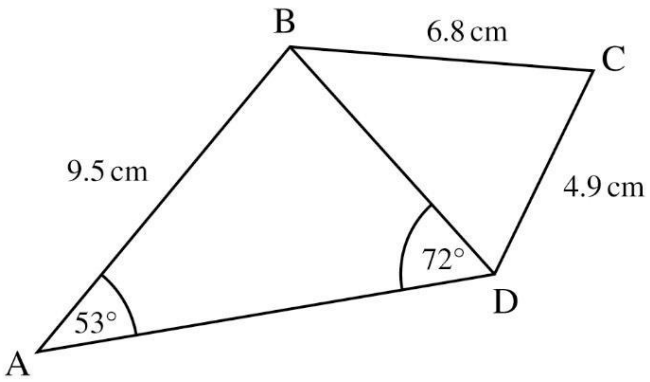


Diagram not drawn accurately

Use the information given in the diagram to calculate the size of the angle DBC.

Answer_____[4]

5)

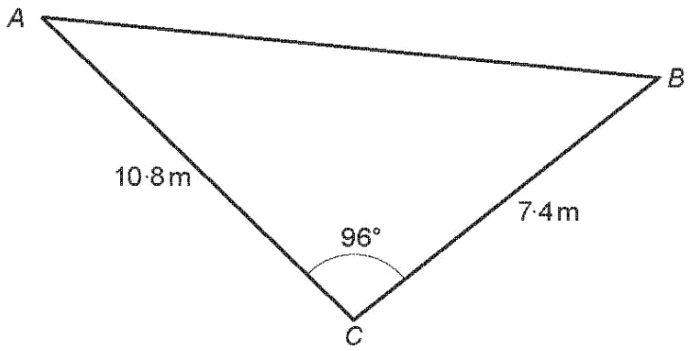


Diagram not drawn to scale

Calculate the length of the side *AB*. [3]

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6)

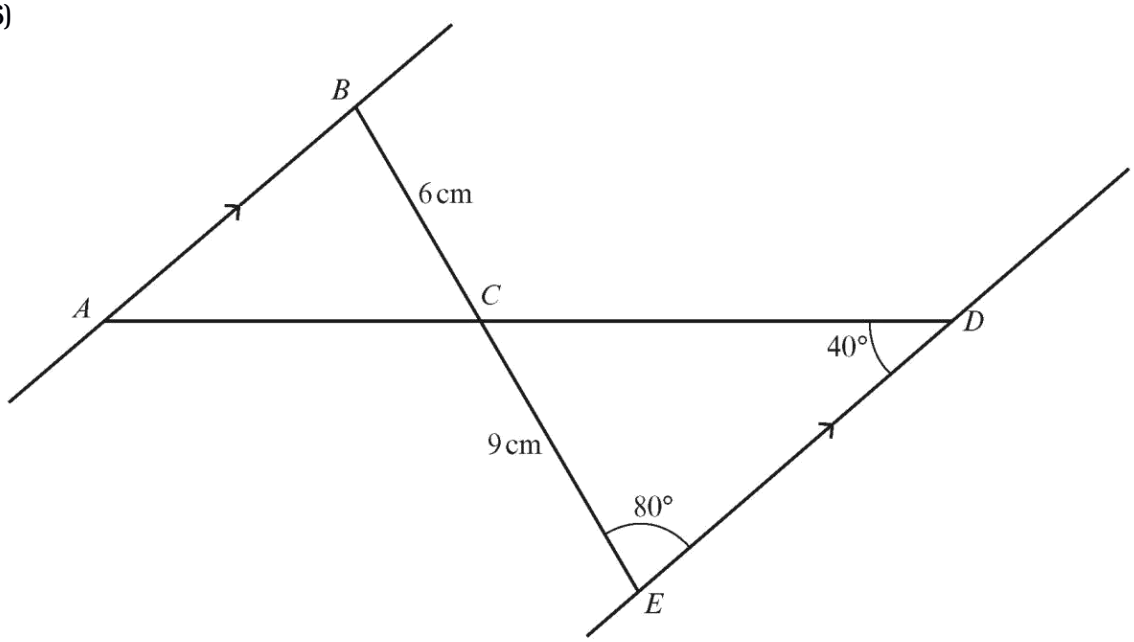

Diagram not drawn to scale

Given that AB is parallel to ED, calculate the length of AB.

[5]

7) The diagram shows a quadrilateral *ABCD*.

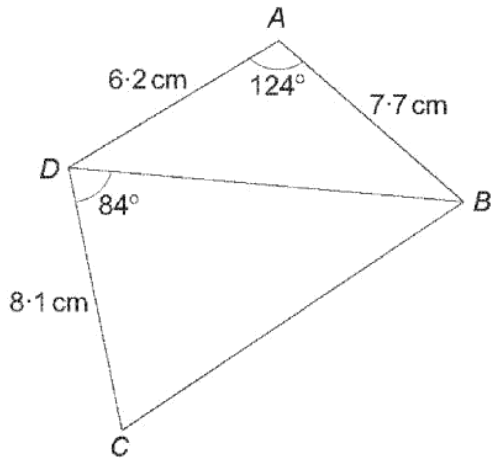

Diagram not drawn to scale

Calculate the area of triangle *BCD*. [6]

8)

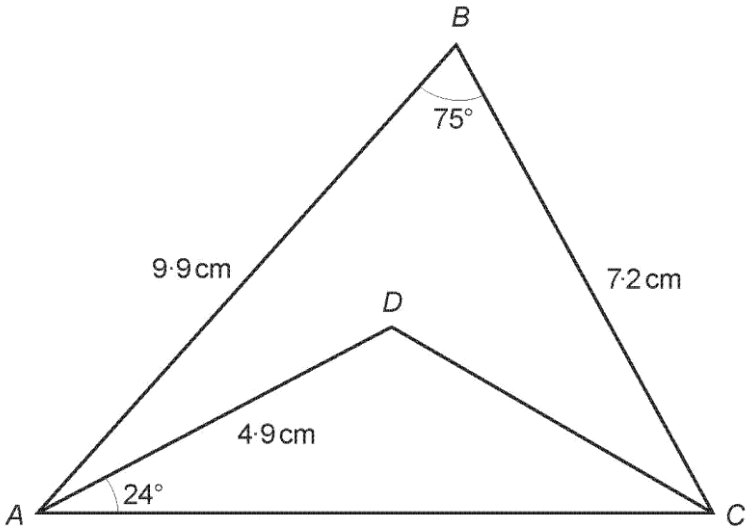

Diagram not drawn to scale

Calculate the area of the quadrilateral *ABCD*. [7]

9)

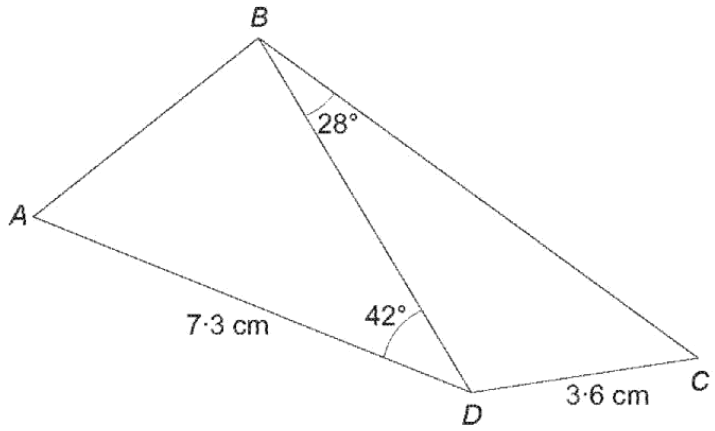

Diagram not drawn to scale

The area of triangle ABD is $16{\cdot}2\,cm^2$.
$B\hat{C}D$ is an acute angle.
Calculate the size of $B\hat{C}D$. [6]

10) A triangular flowerbed in a park is being prepared for planting bulbs.
The gardener is going to lay compost over all the flowerbed to a depth of 12 cm.

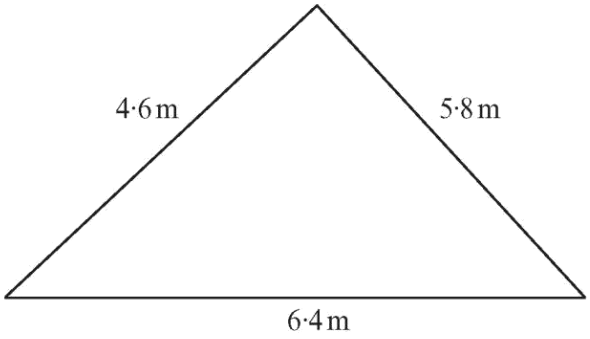

Diagram not drawn to scale

Calculate the volume of compost required.

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[8]

11) The area of triangle ABC is $29\,cm^2$.

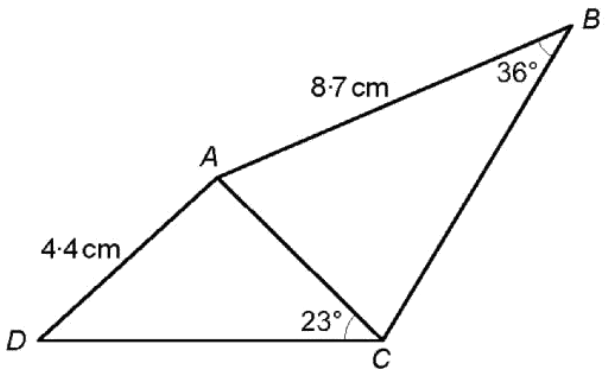

Diagram not drawn to scale

Calculate the size of $A\hat{D}C$. [9]

12)

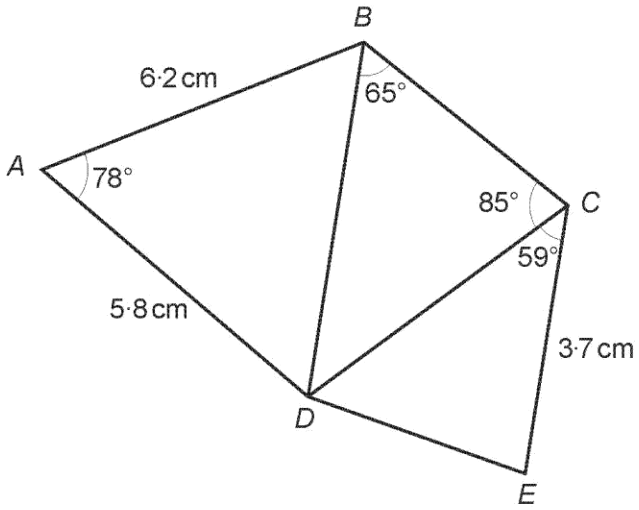

Diagram not drawn to scale

Calculate the area of triangle *DEC*. [8]

13)

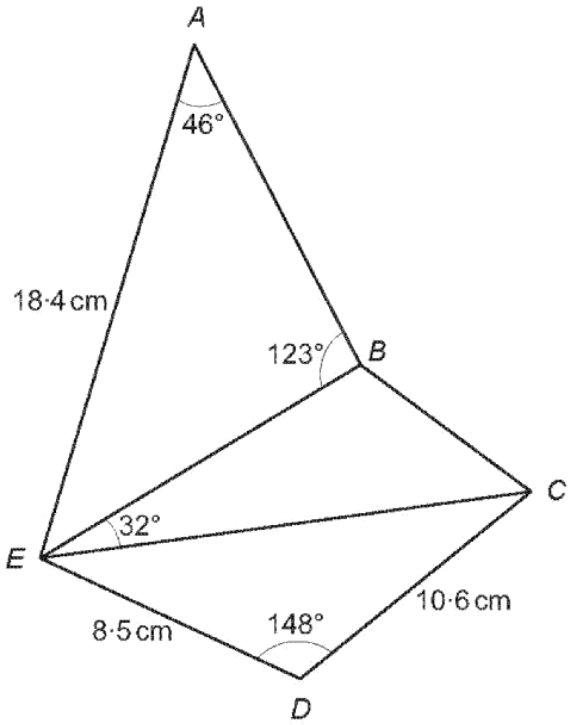

Diagram not drawn to scale

Calculate the area of triangle *BEC*. [8]

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14)

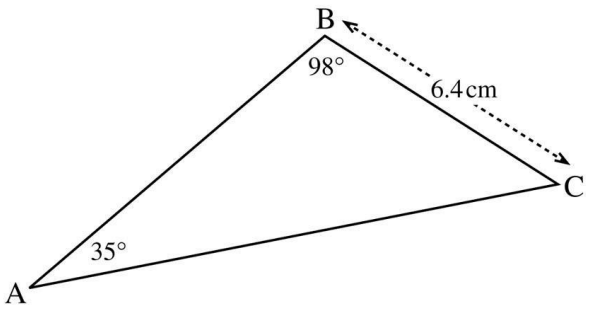

Diagram not drawn accurately

Calculate the length of AB in the given triangle.

Answer _____ [4]

15) A 9-pointed star, with centre O, is shown below.
Each side of the star is of length x cm.

The distance from the centre to every **inner** vertex of the star is 7 cm.
The distance from the centre to every **outer** vertex of the star is 10 cm.

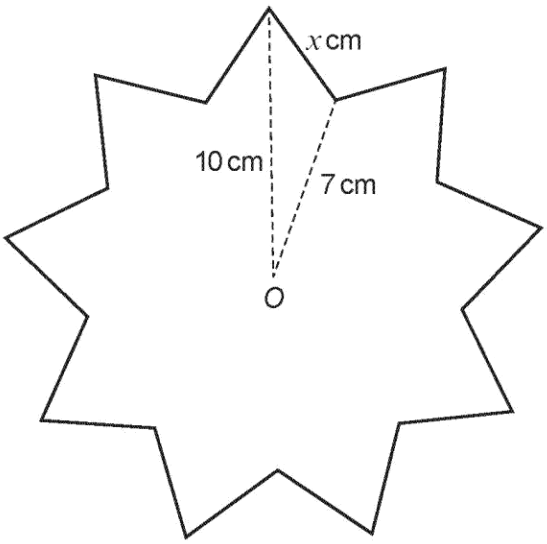

Diagram not drawn to scale

(a) Calculate the perimeter of the star. [5]

(b) Calculate the area of the star. [3]