1. In triangle ABC, AC = 5, BC = 7, $\hat{A} = 48°$, as shown in the diagram.

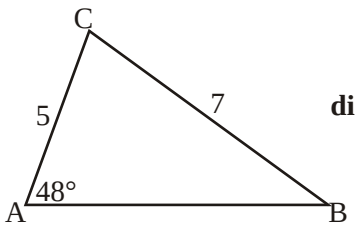


diagram not to scale

Find $\hat{B}$, giving your answer correct to the nearest degree.

Working:

Answer:

.....

(Total 6 marks)

2. A triangle has sides of length 4, 5, 7 units. Find, to the nearest tenth of a degree, the size of the largest angle.

Working:

Answer:

.....

(Total 4 marks)

3. The following diagram shows a triangle with sides 5 cm, 7 cm, 8 cm.

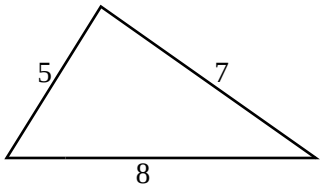


Diagram not to scale

Find

(a) the size of the smallest angle, in degrees;

(b) the area of the triangle.

Working:

Answers:

(a) .....

(b) .....

(Total 4 marks)

4. The following diagram shows triangle ABC.

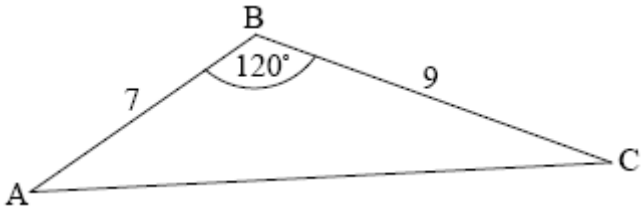


diagram not to scale

AB = 7 cm, BC = 9 cm and $A\hat{B}C = 120°$.

(a) Find AC.

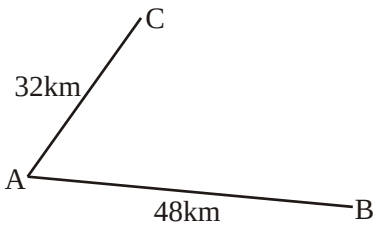
(3)

(b) Find $B\hat{A}C$.

(3)

(Total 6 marks)

5. Town A is 48 km from town B and 32 km from town C as shown in the diagram.



Given that town B is 56 km from town C, find the size of angle $C\hat{A}B$ to the nearest degree.

Working:

Answer:

.....

(Total 4 marks)

6. Two boats A and B start moving from the same point P. Boat A moves in a straight line at 20 km h^{-1} and boat B moves in a straight line at 32 km h^{-1}. The angle between their paths is 70°.

Find the distance between the boats after 2.5 hours.

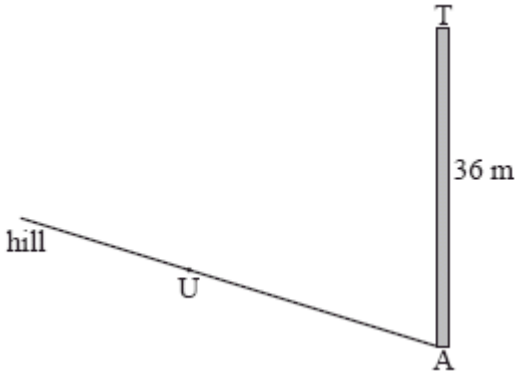
Working:

Answer:

.....

(Total 6 marks)

7. There is a vertical tower TA of height 36 m at the base A of a hill. A straight path goes up the hill from A to a point U. This information is represented by the following diagram.



The path makes a 4° angle with the horizontal.
The point U on the path is 25 m away from the base of the tower.
The top of the tower is fixed to U by a wire of length x m.

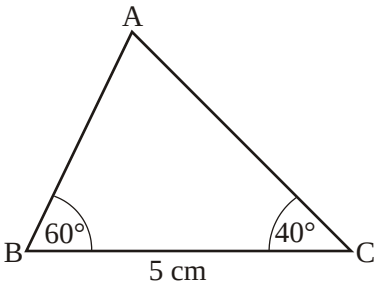
(a) Complete the diagram, showing clearly all the information above.

(3)

(b) Find x.

(4)
(Total 7 marks)

8. The following diagram shows a triangle ABC, where BC = 5 cm, $\hat{B} = 60°$, $\hat{C} = 40°$.



(a) Calculate AB.

(b) Find the area of the triangle.

Working:

Answers:

(a) ……..

(b) ……..

(Total 6 marks)

9. The diagram below shows a triangle ABD with AB = 13 cm and AD = 6.5 cm.
Let C be a point on the line BD such that BC = AC = 7 cm.

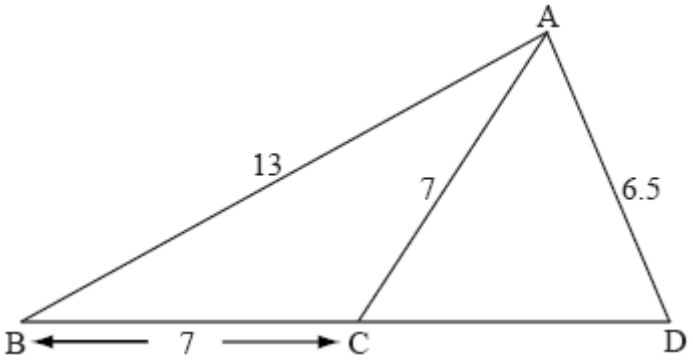


diagram not to scale

(a) Find the size of angle ACB.

(3)

(b) Find the size of angle CAD.

(5)
(Total 8 marks)

10. The diagram below shows triangle PQR. The length of [PQ] is 7 cm, the length of [PR] is 10 cm, and $P\hat{Q}R$ is 75°.

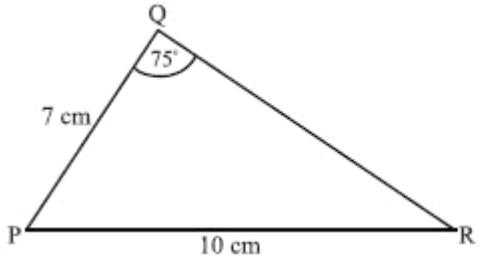


diagram not to scale

(a) Find $P\hat{Q}R$.

(3)

(b) Find the area of triangle PQR.

(3)
(Total 6 marks)

11. In the triangle PQR, PR = 5 cm, QR = 4 cm and PQ = 6 cm.

Calculate

(a) the size of $P\hat{Q}R$;

(b) the area of triangle PQR.

(Total 6 marks)

12. In triangle PQR, PQ is 10 cm, QR is 8 cm and angle PQR is acute. The area of the triangle is 20 cm^2. Find the size of angle $P\hat{Q}R$.

Working:

Answers:

.....

(Total 6 marks)

13. The points P, Q, R are three markers on level ground, joined by straight paths PQ, QR, PR as shown in the diagram. QR = 9 km, $P\hat{Q}R = 35°$, $P\hat{R}Q = 25°$.

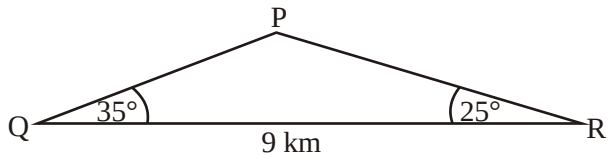


Diagram not to scale

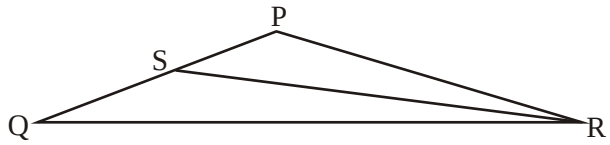
(a) Find the length PR.

(3)

(b) Tom sets out to walk from Q to P at a steady speed of 8 km h^{-1}. At the same time, Alan sets out to jog from R to P at a steady speed of a km h^{-1}. They reach P at the same time. Calculate the value of a.

(7)

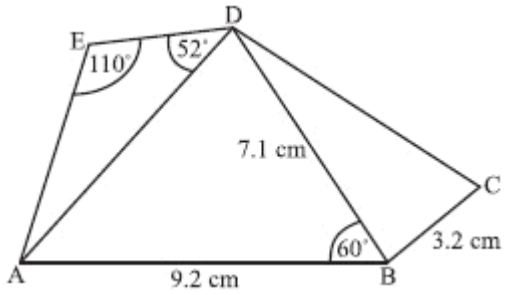
(c) The point S is on [PQ], such that RS = 2QS, as shown in the diagram.



Find the length QS.

(6)
(Total 16 marks)

14. The following diagram shows a pentagon ABCDE, with AB = 9.2 cm, BC = 3.2 cm, BD = 7.1 cm, $A\hat{E}D = 110°$, $A\hat{D}E = 52°$ and $A\hat{B}D = 60°$.



(a) Find AD.

(4)

(b) Find DE.

(4)

(c) The area of triangle BCD is 5.68 cm^2. Find $D\hat{B}C$.

(4)

(d) Find AC.

(4)

(e) Find the area of quadrilateral ABCD.

(5)