1

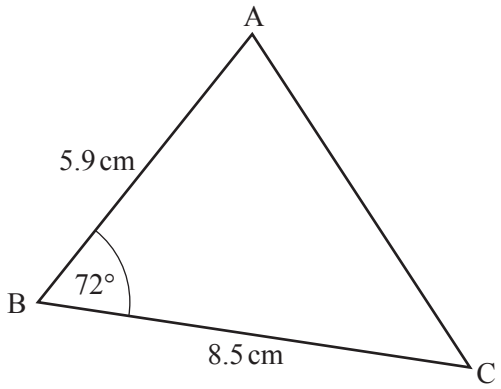
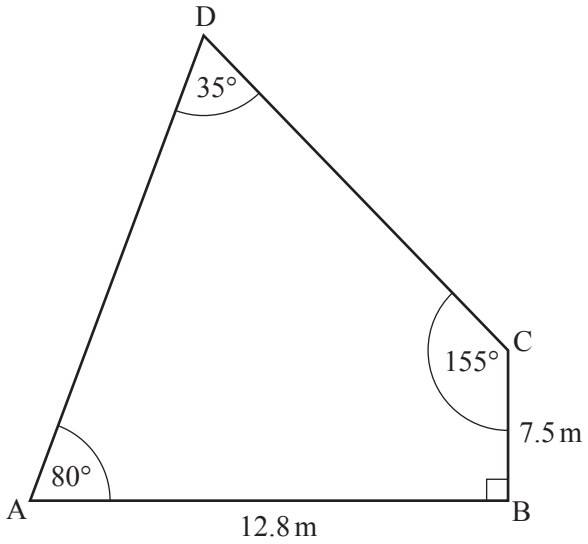


Fig. 5

Fig. 5 shows triangle ABC, where angle $ABC = 72°$, $AB = 5.9$ cm and $BC = 8.5$ cm. Calculate the length of AC. **[3]**

2 Fig. 10.1 shows Jean's back garden. This is a quadrilateral ABCD with dimensions as shown.



Not to scale

Fig. 10.1

(i) (*A*) Calculate AC and angle ACB. Hence calculate AD. **[6]**

(*B*) Calculate the area of the garden. **[3]**

(ii) The shape of the fence panels used in the garden is shown in Fig. 10.2. EH is the arc of a sector of a circle with centre at the midpoint, M, of side FG, and sector angle 1.1 radians, as shown. FG = 1.8 m.

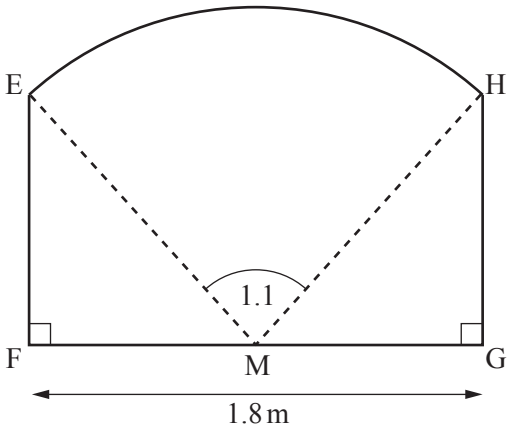


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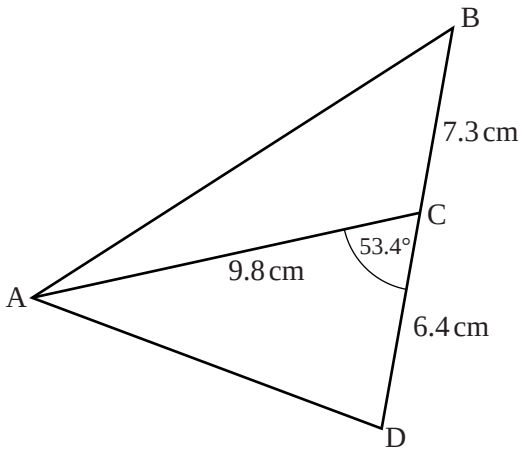
Fig. 10.2

Calculate the area of one of these fence panels. **[5]**

3



Not to scale

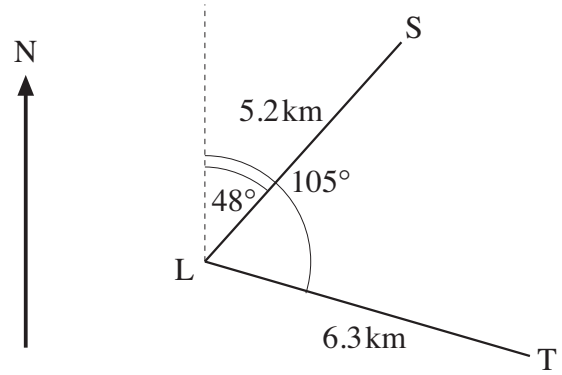
Fig. 3

In Fig. 3, BCD is a straight line. AC = 9.8 cm, BC = 7.3 cm and CD = 6.4 cm; angle ACD = 53.4°.

(i) Calculate the length AD. **[3]**

(ii) Calculate the area of triangle ABC. **[2]**

4 (i)



Not to scale

Fig. 10.1

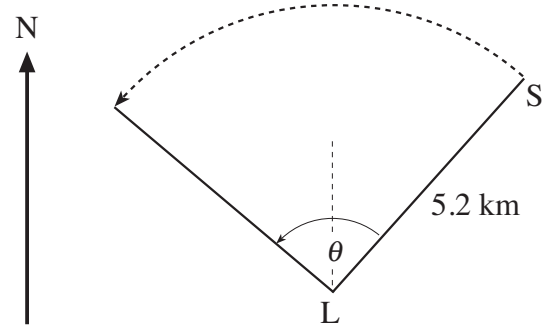
At a certain time, ship S is 5.2 km from lighthouse L on a bearing of 048°. At the same time, ship T is 6.3 km from L on a bearing of 105°, as shown in Fig. 10.1.

For these positions, calculate

(*A*) the distance between ships S and T, [3]

(*B*) the bearing of S from T. [3]

(ii)



Not to scale

Fig. 10.2

Ship S then travels at 24 km h ^{1} anticlockwise along the arc of a circle, keeping 5.2 km from the lighthouse L, as shown in Fig. 10.2.

Find, in radians, the angle θ that the line LS has turned through in 26 minutes.

Hence find, in degrees, the bearing of ship S from the lighthouse at this time. [5]

5 Fig. 7 shows a sketch of a village green ABC which is bounded by three straight roads. AB = 92 m, BC = 75 m and AC = 105 m.

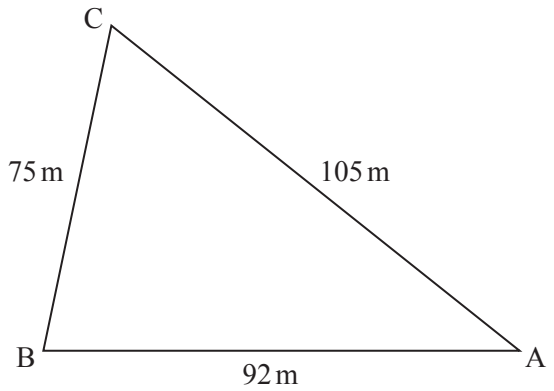


Fig. 7

Calculate the area of the village green. **[5]**

6

Not to scale

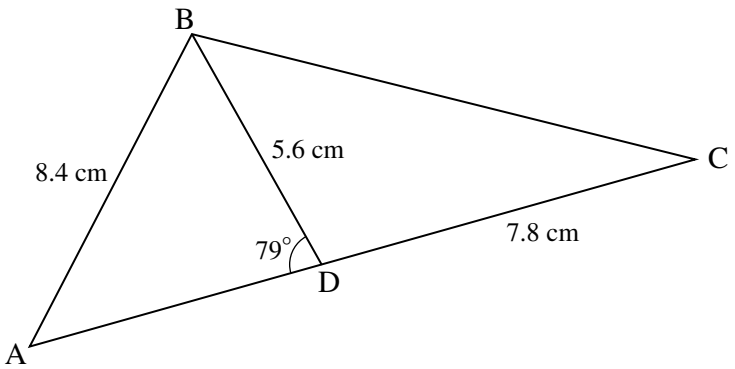


Fig. 7

Fig. 7 shows triangle ABC, with AB = 8.4 cm. D is a point on AC such that angle ADB = 79°, BD = 5.6 cm and CD = 7.8 cm.

Calculate

(i) angle BAD, **[2]**

(ii) the length BC. **[3]**