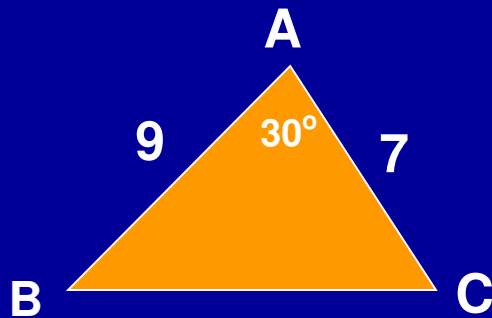


**TOPIC:**

**SOLUTION OF  
TRIANGLES**

# Q21: Section C

(a)

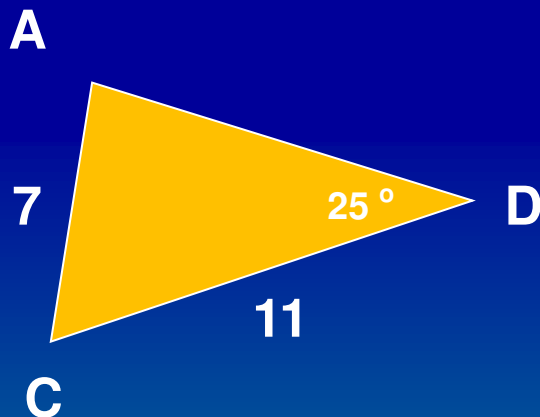


Use Cos Rule.

$$BC^2 = 9^2 + 7^2 - 2(9)(7) \cos 30^\circ$$
$$= 20.881$$

$$BC = 4.570$$

(b)



Use Sin Rule.

$$\frac{\sin \angle CAD}{11} = \frac{\sin 25^\circ}{7}$$

$$\sin \angle CAD = 0.6641$$

$$\angle CAD = 41.61^\circ$$

$$\begin{aligned} \text{(c) Area ABCD} &= \frac{1}{2}(9)(7) \sin 30^\circ + \frac{1}{2}(7)(11) \sin 113.39^\circ \\ &= 51.09 \end{aligned}$$

The diagram shows the calculation of the area of a quadrilateral ABCD. The area is calculated as the sum of two triangles. The first triangle has sides 9 and 7 with an included angle of 30 degrees. The second triangle has sides 7 and 11 with an included angle of 113.39 degrees. The final result is 51.09. Annotations include a red box labeled 'A1' and three red circles labeled 'M1' with arrows pointing to the terms in the equation.

# Q22: Section C

(a) Area ABCD =  $\frac{1}{2}(5)(6)\sin \angle BCD = 13$

$\angle BCD = 60^\circ 4'$

✓ A1

✓ M1

(b)  $BD^2 = 5^2 + 6^2 - 2(5)(6) \cos 60^\circ 4'$

$BD = 5.573$

✓ A1

✓ M1

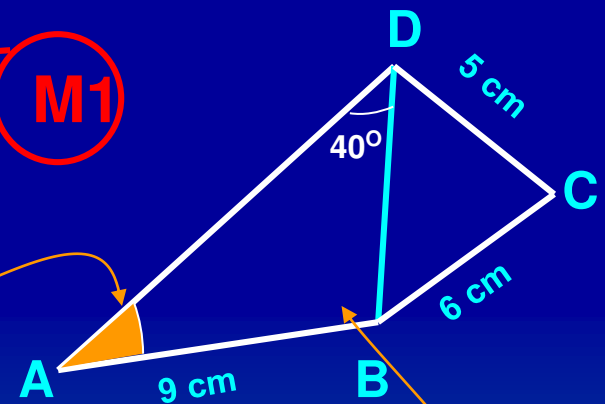
(c)  $\frac{\sin \angle BAD}{5.573} = \frac{\sin 40^\circ}{9}$

$\angle BAD = 23^\circ 27'$

$\angle ABD = 180^\circ - 40^\circ - 23^\circ 17'$   
 $= 116^\circ 33'$

✓ A1

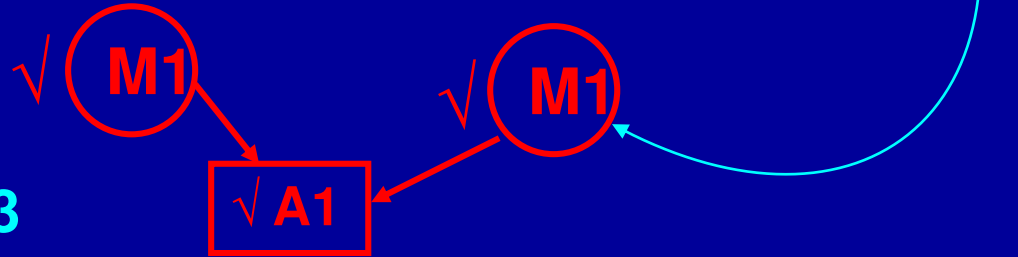
✓ A1



(d) Area ABCD = Area  BCD + Area  BAD

$$= 13 + \frac{1}{2}(9)(5.573)\sin 116^\circ 33'$$

$$= 35.43$$



*THE END*

**TAMAT**

