Question Number	Scheme	Marks
1.	(a) Area $ABC = \frac{1}{2} \times 10 \times 16 \times \sin 35 = 45.9 \text{ cm}^2$	M1 A1
	(b) $BC^2 = 10^2 + 16^2 - 2 \times 10 \times 16 \cos 35$ $BC = \sqrt{93.87} = 9.69$	M1 A1
	$\cos B = \dfrac{10^2 + 93.87 - 16^2}{2 \times 10 \times \sqrt{93.87}} \quad (= -0.3206)$	M1 A1ft
	$\angle B = 108.7°$ *alternative* (last three marks of part (b))	A1 (7)
	$\quad\dfrac{16}{\sin B} = \dfrac{9.69}{\sin 35} \Rightarrow \sin B = \dfrac{16 \times \sin 35}{9.69} = 0.9472 \qquad$ M1 A1ft	
	$\quad\Rightarrow \angle B = 71.3° \ \text{ or } \ \angle B = 108.7°$ $\quad$ so	
	$\angle A = 35°, \angle B = 71.3°, \angle C = 73.7°$ or $\angle A = 35°, \angle B = 108.7°, \angle C = 36.3°$	
	since AC is the longest side, $\angle B$ is the largest angle, so $\angle B = 108.7°$ $\quad$ A1 *alternative* (last three marks of part (b))	
	$\dfrac{10}{\sin C} = \dfrac{9.69}{\sin 35°} \Rightarrow \sin C = \dfrac{10 \sin 35°}{9.69} = 0.5920 \qquad$ M1 A1ft	
	$\angle C = 36.3°$ (must be acute) $\angle B = 180° - 35° - 36.3° = 108.7°$ $\qquad\qquad\qquad\qquad$ A1	

Notes for Question 1

(a)

M1   for any *complete* method for obtaining the area of $\triangle ABC$. Mark scheme uses $\dfrac{1}{2}ab\sin C$

formula, but the perpendicular height from B can be found (not nec

correct value) and $\dfrac{1}{2}\times$ base x height used.

A1cao for 45.9 (cm^2) **must be 3 sf**

(b)

M1   for the cosine rule, in either form, with BC as the unknown

A1   for making BC or BC^2 the subject and all numbers correct.

M1   for using the cosine rule to obtain a numerical expression for value of cos B or or sine rule (either way

up) with sin$B$ as the unknown

A1ft for correct numbers in the sine or cosine rule, follow through their value for BC^2 (or BC).

sin B or sin C must now be the subject.

A1cao for 108.7°. Allow with more digits if rounding penalised in (a).

Alternative for (b): Uses the perp height. Marks for (a) cannot be awarded here, so no mark for finding the

height in (b).

Perp from B =$BX = 10\sin 35$	
$AX = 10\cos 35 \Rightarrow XC = 16 - 10\cos 35$	M1A1
$\tan XBC = \dfrac{XC}{BX} = \dfrac{16 - 10\cos 35}{10\sin 35}, \quad \angle XBC =$	M1,A1
Reqd angle is $55 + 53.7 = 103.7$	A1