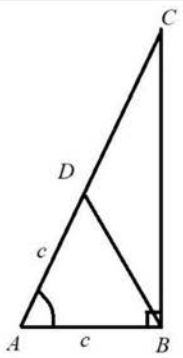
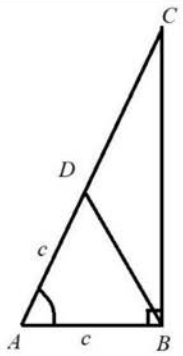
Q	Marking Instructions	AO	Marks	Typical Solution
6(a)	Uses area of ADB = area of CDB or area of ADB = ½ area of ABC Possibly by use of "½ab sinC" twice	AO3.1a	M1	 Area of ADB = Area of CDB
	Deduces that AC = 2 x AD = 2 x AB or equivalent	AO1.1b	A1	CD = AD = c AC = 2c
	Uses trigonometry involving sin and tan based on triangle with AC = 2 x AB	AO1.1a	M1	$\cos A = \frac{c}{2c} = \frac{1}{2}$ so A = 60°
	Obtains correct conclusion (AG) Sets out a well-constructed mathematical argument. Use of 60° or equivalent must be justified	AO2.1	R1	tan A = √3 $\sin A = \frac{\sqrt{3}}{2}$ 2sin A = √3 = tan A
(b)(i)	Uses $\tan A = \frac{\sin A}{\cos A}$ and multiplies Or Uses sketch of two graphs to show two intersections	AO1.1a	M1	$\frac{\sin A}{\cos A} = 2 \sin A$ sin A = 2 sin A cos A
	Solves the equation to give A = 0° and 60° Or interprets intersections of graphs of the correct shape between 0° and 90° to be the solutions Special case 0° and 60° stated but not justified award B1. Stated and verified award B2	AO1.1b	A1	sin A(1 – 2cos A) = 0 sin A = 0 or cos A = ½ A = 0° and A = 60°
(b)(ii)	Selects A = 60°. (Can be earned with no other working shown)	AO3.2a	B1	We need A = 60°
	Total		**7**	

Q	Alternative marking Instructions	AO	Marks	Typical Solution
6(a)	Obtains area formula for ABD using sin A	AO3.1a	M1	 Area of ADB = ½c² sin A
	Obtains expression for BC using tan A	AO1.1a	M1	$\frac{BC}{c} = \tan A$ BC = c tan A
	Obtains correct expression for area of ABC	AO1.1b	A1	Area of ABC = ½ c² tan A
	Simplifies to correct conclusion (AG) Sets out a well-constructed mathematical argument.	AO2.1	R1	½ c² tan A = 2 x ½c² sin A tan A = 2 sin A
(b)(i)	Uses $\tan A = \frac{\sin A}{\cos A}$ and multiplies Or Uses sketch of two graphs to show two intersections	AO1.1a	M1	$\frac{\sin A}{\cos A} = 2 \sin A$ sin A = 2 sin A cos A
	Solves the equation to give A = 0° and 60° Or interprets intersections of graphs of the correct shape between 0° and 90° to be the solutions Special case 0° and 60° stated but not justified award B1. Stated and verified award B2	AO1.1b	A1	sin A(1 – 2cos A) = 0 sin A = 0 or cos A = ½ A = 0° and A = 60°
(b)(ii)	Selects A = 60°. (Can be earned with no other working shown)	AO3.2a	B1	We need A = 60°
	Total		**7**	