

Q	Marking instructions	AO	Marks	Typical solution
8(a)(i)	Explains that $(m + n)$ is the largest side (which must be opposite the largest angle)	2.4	E1	The largest angle must be opposite the largest side which is $(m + n)$
	Subtotal		1	

Q	Marking instructions	AO	Marks	Typical solution
8(a)(ii)	Substitutes for a, b, c into cosine rule	1.1a	M1	$(m + n)^2 = m^2 + (m - n)^2 - 2m(m - n)\cos A$
	Makes $\cos A$ the subject	1.1a	M1	$\cos A = \frac{m^2 + (m - n)^2 - (m + n)^2}{2m(m - n)}$
	Completes reasoned argument to obtain given result. AG	2.1	R1	$\cos A = \frac{m^2 - 4mn}{2m(m - n)}$ $\cos A = \frac{m - 4n}{2(m - n)}$
	Subtotal		3	

Q	Marking instructions	AO	Marks	Typical solution
8(b)	Deduces that A is 90° , Accept marked on diagram PI by awarding of M1	2.2a	B1	$A \text{ must be } 90^\circ$ $\text{So } \cos A = 0$
	Substitutes $\cos A = 0$ in part (a) equation PI by correct value for n Or uses Pythagoras	3.1a	M1	$\frac{m - 4n}{2(m - n)} = 0$ $m = 4n$
	Obtains $n = 2$	1.1b	A1	$n = 2$
	Subtotal		3	

	Question 8 Total		7	
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