Question Number	Answer	Notes	Marks
8	(a) $4\sin x\cos\alpha + 4\cos x\sin\alpha = 7\sin x\cos\alpha - 7\cos x\sin\alpha$ $\tan A = \dfrac{\sin A}{\cos A}$	M1A1	
	$11\cos x\sin\alpha = 3\sin x\cos\alpha$	M1	
	$3\dfrac{\sin x}{\cos x} = 11\dfrac{\sin\alpha}{\cos\alpha}$ $11\tan\alpha = 3\tan x$	M1A1	
	(b) $3\tan 3y = 11\tan 45, \ = 11$ $\tan 3y = \dfrac{11}{3}$	M1,A1	
	$3y = 74.74,\ 254.74,\ 434.74,$	M1(any one)	
	$y = 24.9,\ 84.9,\ 144.9$	A1A1ft A1ft (intervals of 60)	**(11)**

Notes

(a)

M1   for a correct expansion of either $4\sin(x+\alpha)$ OR $7\sin(x-\alpha)$ AND set equal to each other

A1   for fully correct $4\sin x\cos\alpha + 4\cos x\sin\alpha = 7\sin x\cos\alpha - 7\cos x\sin\alpha$

M1ft   for collecting like terms in **their** $\cos x\sin\alpha$ **and** $\cos\alpha\sin x$

M1d   for using the identity $\tan A = \dfrac{\sin A}{\cos A}$ in their equation (dependant on both first M marks)

A1   for $11\tan\alpha = 3\tan x$ cso **Note this is a show question**. Sufficient working must be seen to award marks.

(b)

M1   for using the result in (a) only to give $3\tan 3y = 11\tan 45$. Or can start again from the original equation to give $3\tan 3y = 11\tan 45$.

A1   for using $\tan 45 = 1$ to give $\tan 3y = \dfrac{11}{3}$ oe

M1ft   for a correct method to find a solution for $3y$

A1   24.9 follow through their values of (74.74 + any multiple of 180) ÷3 for first A1 only
A1ft   84.9   their 24.9 + (a multiple of 60 within the range)
A1ft   144.9
          (*rounding subject to general principles*)

For any extra values within the given range deduct one mark for each up to a maximum of 3 marks. Ignore extra values given outside of the range.