Question Number	Scheme	Marks
1	$2\left(2\cos^2 x-1\right)=7\cos x$ $4\cos^2 x-7\cos x-2=0 \Rightarrow \cos x=-\frac{1}{4}$ $\Rightarrow x=\arccos\left(-\frac{1}{4}\right)=104.5°, 255.5°$	M1 M1 A1 dM1 A1 **(5)** **(5 marks)**

M1 Attempts to use $\cos 2x=\pm 2\cos^2 x\pm 1$ to form a quadratic equation in $\cos x$

If the other two forms are attempted there must be some attempt to use $\sin^2 x+\cos^2 x=1$ to form a quadratic equation in $\cos x$

$2\times 2\cos^2 x-1=7\cos x$ is M0 unless the correct identity has been previously stated or recovery occurs.

M1 Attempts to solve a 3TQ in $\cos x$ using an allowable method (the quadratic need not be correct and may have come from incorrect work)

A1 Reaches $\cos x=-\frac{1}{4}$ or $-\frac{2}{8}$ or −0.25. (May be implied by a correct value for x) Ignore any reference to $\cos x=2$ Those who use $y=\cos x$ and stop at a $y=-\frac{1}{4}$ score A0.

dM1 Depend on the second method mark. Takes arccos of at least one solution (α) of their quadratic where $|\alpha|<1$ to find at least one solution in range. If substitution not seen then you will need to check.

NB a radian answer of awrt 1.8 or correct 1d.p. answer for their α can imply the method.

A1 awrt $104.5°, 255.5°$ with no other values in the range. Ignore values outside the range.

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