(i)	$\tan 2x = \frac{1}{3}$ $2x = 18.4^o, 198.4^o$ $x = 9.22^o, 99.2^o$	**M1**	Attempt correct solution method	Attempt $\tan^{-1}(\frac{1}{3})$ and then halve answer.
		A1	Obtain one of 9.22^o or 99.2^o, or better	Allow radian equiv (0.161 or 1.73).
		A1ft **3**	Obtain second correct angle	Maximum of 2 marks if angles not in degrees. A0 if extra solutions in given range, but ignore extra outside range If M1 A0 given, award A1ft for adding 90^o or $\pi/2$ to their angle. **SR:** if no working shown then allow B1 for each correct solution. Maximum of B1 if in radians, or extra solutions in given range. **SR:** if using tan 2x identity then… **M1** Attempt to find x from solving quadratic equation in tan 2x, derived from correct tan 2x identity. **A1** Obtain at least one of 9.22^o or 99.2^o, or better (or radian equiv) **A1** Obtain second correct angle
(ii)	$3(1 - \sin^2 x) + 2\sin x - 3 = 0$ $3\sin^2 x - 2\sin x = 0$ $\sin x (3\sin x - 2) = 0$ $\sin x = 0, \sin x = \frac{2}{3}$ $x = 0^o, 180^o \quad x = 41.8^o, 138^o$	**M1**	Use $\cos^2 x = 1 - \sin^2 x$, aef	Must be used not just stated. Must be used correctly, so $1 - 3\sin^2 x$ is M0.
		A1	Obtain $3\sin^2 x - 2\sin x = 0$	Allow aef, but must be simplified (ie no constant term; allow 0).
		M1	Attempt to solve equation to find solutions for x	Not dependent on first M1 so could get M0 M1 if $\cos^2 x = \sin^2 x - 1$ previously used. Must be quadratic in sin$x$ (must have sin$x$ term), but can still get M1 if constant term in their quadratic as well. Candidates need to be solving for x, so need to $\sin^{-1}$ at least one of the solutions to their quadratic. Must be acceptable method – if factorising then it must give correct lead term and one other on expansion (inc $c = 0$), if using formula then allow sign slips but no other errors. **SR** If solving the quadratic involves cancelling by sin x rather than factorising then M0, but give B1 if both 41.8^o and 138^o found (or radian equivs)
		A1	Obtain two of 0^o, 180^o, 41.8^o, 138^o	Must come from correct factorisation of correct quadratic equation ie sin x (3sin$x$ + 2) = 0 leading to sin x = 0 and hence $x = 0^o$, 180^o is A0. Allow radian equivs – 0, π (or 3.14), 0.73, 2.41.
		A1 **5**	Obtain all four angles	Must now all be in degrees, with no extra in given range (ignore any outside range). **SR** If no working out seen, then allow B1 for each of 41.8^o and 138^o, and B1 for both 0^o and 180^o. Maximum of B2 if in radians or extra solutions in given range.
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