

Question		Answer	Marks	AO	Guidance
4	(a)	Discriminant $k^2 - 4(-k^2) = 5k^2$ This is never negative so has real roots for all (real) values of k	M1 A1 [2]	2.1 2.2a	Attempt to evaluate the discriminant in terms of k. Also allow for an attempt to use the roots of the equation Clear argument from correct discriminant Condone “This is always positive” or > 0 used in the argument for real roots Also allow for solving the equation and arguing that the roots are real for all k.
4	(b)	Roots $x = \frac{-k \pm \sqrt{5k^2}}{2}$ oe $= \left(\frac{-1 \pm \sqrt{5}}{2}\right) k$	M1 A1 [2]	2.1 2.1	using the quadratic formula FT with their discriminant Also allow for completing the square. Also allow for substituting both roots into the equation and clearly demonstrating the zero AG Must be clearly shown