

Question			Answer	Marks	AOs	Guidance	
1			DR Rearrange as $2x^2 - x + 7 = 0$ Discriminant is $(-1)^2 - 4 \times 2 \times 7$ $= -55 < 0$ so no real roots	M1 M1 (dep) A1 [3]	1.1a 1.1a 2.2a	Must be clearly argued from a correct discriminant which need not be evaluated if clearly negative	Expression for discriminant must be precise if not evaluated
			Alternative method Rearrange as $2x^2 - x + 7 = 0$ Attempt to complete the square $2(x - 0.25)^2 + 6.875 = 0$ $x - 0.25 = \pm\sqrt{-3.4375}$ so no real roots	M1 M1 (dep) A1 [3]		Allow for $2(x - 0.25)^2 + \dots$ soi Must be clearly argued from correct working	
			Second alternative method Rearrange as $[y =]2x^2 - x + 7 = 0$ Differentiate $\frac{dy}{dx} = 4x - 1 = 0$ Stationary point at $(0.25, 6.875)$ Stationary point is minimum so $y \geq 6.875$ so is never zero	M1 M1 (dep) A1 [3]		Must equate to zero Must be clearly argued from correct working	