Question		Answer	Marks	AO	Guidance
13	(a)	**DR** $y = e^x - \frac{3}{2}x^2$ When $x = -0.7, y = -0.238 ... < 0$ When $x = -0.6, y = 0.0088 ... > 0$	**M1**	**1.1**	Attempts to find the value of y for both $x = -0.7$ and $x = -0.6$
		Change of sign indicates a value between -0.7 and -0.6 where the curve crossed the x-axis	**A1** **[2]**	**2.4**	Clear conclusion from two correct values
	(b)	**DR** $f(x) = e^x - \frac{3}{2}x^2$ so $f'(x) = e^x - 3x$	**M1**	**1.1**	Attempt to find $f'(x)$. May be embedded in NR formula
		$x_{n+1} = x_n - \dfrac{e^{x_n} - \frac{3}{2}x_n^2}{e^{x_n} - 3x_n}$	**A1**	**2.1**	Correct NR formula (the subscripts are needed including x_{n+1}).
		Using $x_0 = -0.7$ $x_1 = -0.6081814505$ $x_2 = -0.6037544142$ $x_3 = -0.6037442124$ So $k = -0.60374$ correct to 5sf	**B1** **[3]**	**2.2a**	3 iterations and the root given to 5 sf. Allow $x = -0.60374$ Note $k = -0.6037442124$ to 10 sf.