13 In this question you must show detailed reasoning.

A curve has equation $y = e^x - \frac{3}{2}x^2$.

(a) Show that the curve crosses the x-axis at $x = k$ where $-0.7 < k < -0.6$. **[2]**

(b) Use the Newton-Raphson method with starting value $x_0 = -0.7$ to determine the value of k.

You should write down at least the following.

- The iteration you use
- **Three** iterations
- The solution correct to **5** significant figures **[3]**