3. (a) On separate diagrams sketch the curves with the following equations. On each sketch you should mark the coordinates of the points where the curve crosses the coordinate axes.

(i) $y = x^2 - 2x - 3$

(ii) $y = x^2 - 2|x| - 3$

(iii) $y = x^2 - x - |x| - 3$

(7)

(b) Solve the equation

$$x^2 - x - |x| - 3 = x + |x|$$

(4)