

National 5 Homework 3  
Quadratic equations and graphs

1. Factorise  $4x^2 - 1$  **2 marks**

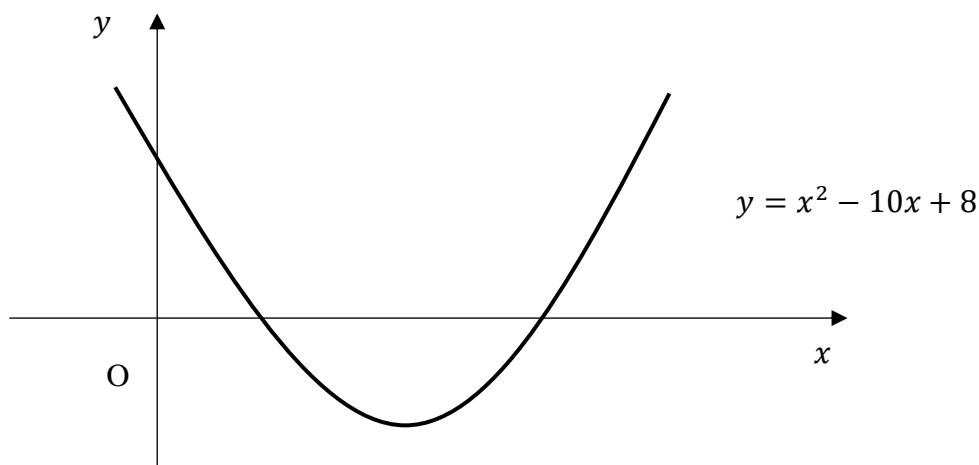
2. Write  $x^2 + 10x - 6$  in completed square form **2 marks**

3. Solve the equation  $(3x - 1)(x + 5) = 0$  **2 marks**

4. Solve the equation  $3x^2 - 5x - 1 = 0$ .

Give your answer correctly rounded to one decimal place **4 marks**

5. The diagram below shows part of the graph of  $y = x^2 - 10x + 8$



(a) Determine the coordinates of the two points where this graph crosses the  $x$ -axis **3 marks**

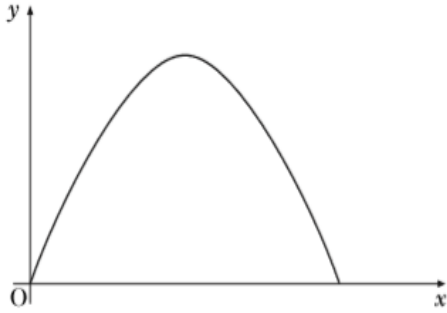
(b) This graph has a minimum turning point, state the coordinates of this turning point **2 marks**

(a) What is the coordinates for the point where this graph crosses the  $y$ -axis **1 mark**

6. Sketch the graph  $y = (x - 1)^2 + 6$   
Clearly mark the axis of symmetry, the turning point and the y intercept.

**3 marks**

7. Part of the graph of  $y = x(12 - x)$  is shown



- (a) State the maximum value for this graph

**3 marks**

- (b) Calculate the two values for  $x$  which give a  $y$ -coordinate of 32

**3 marks**

**25 marks**