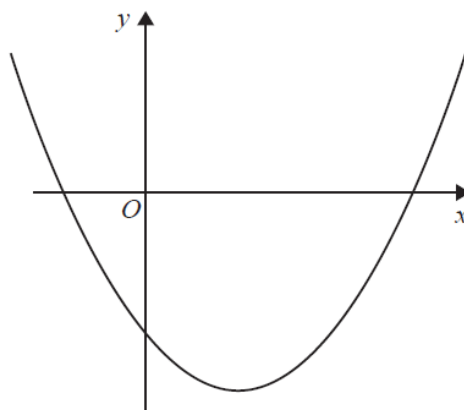


- 1 Write  $x^2 + 6x - 7$  in the form  $(x + a)^2 + b$  where  $a$  and  $b$  are integers.

.....  
(Total for Question is 2 marks)

- 2 Here is a sketch of a curve.



The equation of the curve is  $y = x^2 + ax + b$  where  $a$  and  $b$  are integers.

The points  $(0, -5)$  and  $(5, 0)$  lie on the curve.

Find the coordinates of the turning point of the curve.

(....., .....) )

(Total for Question is 4 marks)

3 Given that  $x^2 - 6x + 1 = (x - a)^2 - b$  for all values of  $x$ ,

(i) find the value of  $a$  and the value of  $b$ .

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots$$

(2)

(ii) Hence write down the coordinates of the turning point on the graph of  $y = x^2 - 6x + 1$

$$(\dots\dots\dots, \dots\dots\dots)$$

(1)

**(Total for Question is 3 marks)**

- 4 Sketch the graph of

$$y = 2x^2 - 8x - 5$$

showing the coordinates of the turning point and the exact coordinates of any intercepts with the coordinate axes.

**(Total for Question is 5 marks)**

- 5 Write down the coordinates of the turning point on the graph of  $y = (x + 12)^2 - 7$

(....., .....) )

**(Total for Question is 1 mark)**

- 6 Find the coordinates of the turning point on the curve with equation  $y = 9 + 18x - 3x^2$   
You must show all your working.

(....., .....) )

**(Total for Question is 4 marks)**