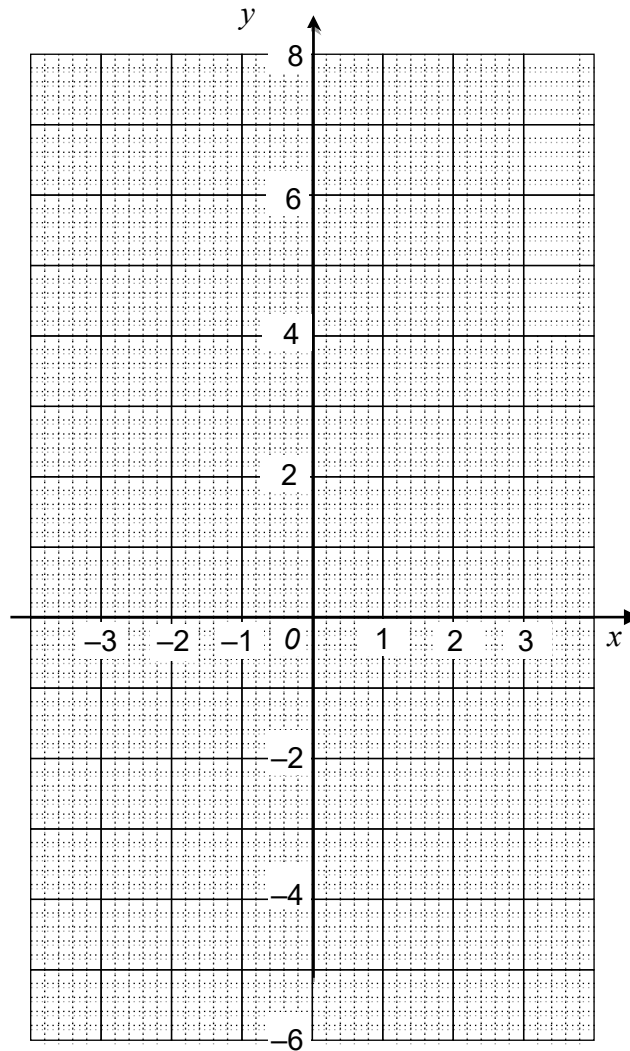


# Topic Test 1 (20 minutes)

## Linear and Quadratic equations and their graphs - Higher

1 (a) Draw the graph of  $y = 2x + 1$  for values of  $x$  from  $-3$  to  $3$

[2 marks]



1 (b) Show clearly how you can use the graph to solve the equation

$$2x + 1 = 4$$

[1 mark]

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2 Solve  $\frac{2x+1}{3} + 4 = 4(x-1)$

[3 marks]

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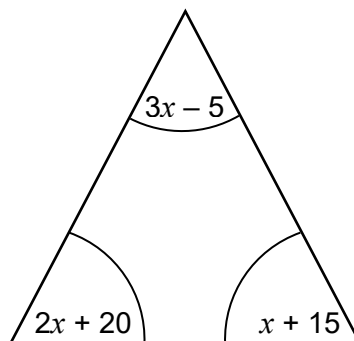
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$x =$  \_\_\_\_\_

3 Show that this triangle is isosceles.

[4 marks]



Not drawn accurately

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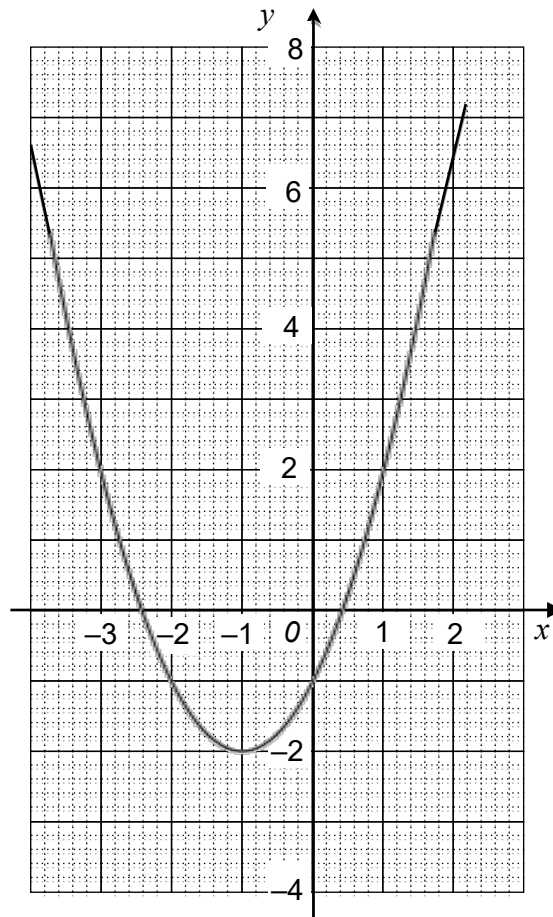
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4 Here is the graph of  $y = x^2 + 2x - 1$  for values of  $x$  from  $-3$  to  $2$



From the graph write down the coordinates of the following

**[3 marks]**

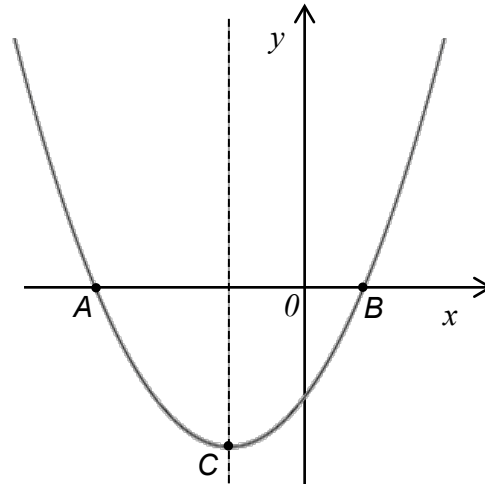
The  $y$ -intercept ( \_\_\_\_\_ , \_\_\_\_\_ )

The turning point ( \_\_\_\_\_ , \_\_\_\_\_ )

The negative root of  $x^2 + 2x - 1 = 0$  ( \_\_\_\_\_ , \_\_\_\_\_ )

The positive root of  $x^2 + 2x - 1 = 0$  ( \_\_\_\_\_ , \_\_\_\_\_ )

5 Here is a sketch of the graph  $y = (x - 1)(x + 4)$



5 (a) Write down the coordinates of the point A and B.

[1 mark]

Answer ( \_\_\_\_\_ ),( \_\_\_\_\_ ) and ( \_\_\_\_\_ ),( \_\_\_\_\_ )

5 (b) Work out the coordinates of the point C.

[1 mark]

Answer \_\_\_\_\_

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**6 (a)** Write the equation  $x^2 + 6x - 5 = 0$  in the form  $(x + a)^2 - b = 0$

**[2 marks]**

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Answer \_\_\_\_\_

**6 (b)** Sketch the graph of  $y = x^2 + 6x - 5$  on the axes.

Clearly mark the exact value of the points where the graph crosses the axes and the coordinates of the minimum point.

Use surds where necessary.

**[3 marks]**

