Name:

Level 2 Further Maths

Quadratic Graphs

Ensure you have: Pencil or pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Revision for this topic

www.corbettmaths.com/more/further-maths/
1. Sketch the graph of \( y = x^2 + 6x + 8 \)
   Clearly show the coordinates of any points of intersection with the axes.

2. Sketch the graph of \( y = x^2 - x - 56 \)
   Clearly show the coordinates of any points of intersection with the axes.
3. (a) Sketch the graph of \( y = x^2 - 38x + 72 \)
   Clearly show the coordinates of any points of intersection with the axes.

(b) Work out the equation of the line of symmetry of the graph of
\( y = x^2 - 38x + 72 \)
4. (a) Sketch the graph of \( y = x^2 - 4x - 5 \)
   Clearly show the coordinates of any points of intersection with the axes.

(b) Work out the equation of the line of symmetry of the graph of
   \[ y = x^2 - 4x - 5 \]

(c) Use your answer to (b) to find the coordinates of the minimum point of
   \[ y = x^2 - 4x - 5 \]
5. Sketch the graph of \( y = -x^2 + 6x + 55 \) 
Clearly show the coordinates of any points of intersection with the axes.

6. Sketch the graph of \( y = 5x^2 - 31x + 30 \) 
Clearly show the coordinates of any points of intersection with the axes.
7. Sketch the graph of \( y = 2x^2 + 7x - 4 \)
Clearly show the coordinates of any points of intersection with the axes.

(b) Work out the equation of the line of symmetry of the graph of
\[ y = 2x^2 + 7x - 4 \]

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(1)
8. Shown is the graph of \( y = x^2 + bx + c \)

(a) Find the values of \( b \) and \( c \)

(b) Find the coordinates of point \( A \)
9. Shown is the graph of \( y = x^2 + ax + b \)

(a) Find the values of \( a \) and \( b \)

(b) Find the coordinates of point \( c \)
11. Shown below is the graph of \( y = 2x^2 - 4x + 1 \)

The graph of \( 2x^2 - 4x + 1 = k \) has exactly one solution.

Use the graph to find the value of \( k \)
12. Shown below is \( y = x^2 - x - 2 \)

By drawing an appropriate straight line, use your graph to find estimates for the solutions of \( x^2 - 2x - 1 = 0 \)

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13. Shown below is \( y = 2x^2 - x - 2 \)

By drawing an appropriate straight line, use your graph to find estimates for the solutions of \( 2x^2 - 4x - 3 = 0 \)
14. Here is the graph of $y = a + bx - 3x^2$

Work out the coordinates of the point A.