

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

.....
(2)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = x^2 - 6x + 1$

.....
(1)

(Total for question 1 is 3 marks)

2 (a) Write $x^2 + 8x + 5$ in the form $(x + a)^2 + b$ where a and b are integers.

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(2)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = x^2 + 8x + 5$

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(1)

(Total for question 2 is 3 marks)

3 (a) Write $x^2 + 10x + 2$ in the form $(x + a)^2 + b$ where a and b are integers.

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(2)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = x^2 + 10x + 2$

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(1)

(Total for question 3 is 3 marks)

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

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(2)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = x^2 - 2x - 1$

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(1)

(Total for question 4 is 3 marks)

- 5 By completing the square, find the coordinates of the turning point of the curve with the equation $y = x^2 + 8x + 3$
You must show all your working.

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(Total for question 5 is 3 marks)

- 6 By completing the square, find the coordinates of the turning point of the curve with the equation $y = x^2 + 10x - 8$
You must show all your working.

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(Total for question 6 is 3 marks)

- 7 By completing the square, find the coordinates of the turning point of the curve with the equation $y = x^2 + 3x - 7$
You must show all your working.

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(Total for question 7 is 3 marks)

- 8 By completing the square, find the coordinates of the turning point of the curve with the equation $y = x^2 - x + 8$
You must show all your working.

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(Total for question 8 is 3 marks)

9 (a) Write $2x^2 - 12x + 23$ in the form $a(x + b)^2 + c$ where a , b , and c are integers.

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(3)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = 2x^2 - 12x + 23$

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(1)

(Total for question 9 is 4 marks)

10 (a) Write $2x^2 + 16x + 26$ in the form $a(x + b)^2 + c$ where a , b , and c are integers.

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(3)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = 2x^2 + 16x + 26$

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(1)

(Total for question 10 is 4 marks)

11 (a) Write $3x^2 - 6x + 6$ in the form $a(x + b)^2 + c$ where a , b , and c are integers.

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(3)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = 3x^2 - 6x + 6$

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(1)

(Total for question 11 is 4 marks)

12 (a) Write $3x^2 - 30x + 63$ in the form $a(x + b)^2 + c$ where a , b , and c are integers.

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(3)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = 3x^2 - 30x + 63$

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(1)

(Total for question 12 is 4 marks)

- 13** By completing the square, solve $x^2 + 10x - 3 = 0$
Give your answers in surd form.

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(Total for question 13 is 5 marks)

- 14** By completing the square solve $x^2 + 5x + 4.25 = 0$
Give your answers in surd form.

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(Total for question 14 is 5 marks)