JP Maths Revision

Completing the Square

Exam Style Questions

1. Complete the square of $x^2 + 8x + 4$

…….. (2 marks)

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2. Complete the square of $x^2 + 12x + 6$

…….. (2 marks)

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3. Complete the square of $x^2 + 20x - 4$

…….. (2 marks)

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4. (a) Write $x^2 + 12x + 6$ in the form $(x + a)^2 + b$ where a and b are integers.

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(b) Hence, write down the coordinates of the turning point of the graph with equation

$y = x^2 + 12x + 6$

…….. (3 marks)

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5. (a) Write $x^2 + 9x - 1$ in the form $(x + a)^2 + b$ where a and b are constants to be determined.

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(b) Hence, write down the coordinates of the turning point of the graph with equation

$y = x^2 + 9x - 1$

…….. (3 marks)

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6. (a) Write $x^2 - 20x + 3$ in the form $(x + a)^2 + b$ where a and b are constants to be determined.

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(b) Hence, write down the coordinates of the turning point of the graph with equation $y = x^2 - 20x + 3$

…….. (3 marks)

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7. By completing the square, find the coordinates of the turning point of the graph with equation $y = x^2 - x - 5$.

…….. (3 marks)

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8. By completing the square, find the coordinates of the turning point of the graph with equation $y = 5x^2 + 10x + 20$.

…….. (4 marks)

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9. By completing the square, find the coordinates of the turning point of the graph with equation $y = 3x^2 + 12x + 18$.

…….. (4 marks)

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10. By completing the square, find the coordinates of the turning point of the graph with equation $y = 2x^2 + 8x + 9$.

…….. (4 marks)

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11. By completing the square, find the coordinates of the turning point of the graph with equation $y = 3x^2 + 7x - 3$.

…….. (4 marks)

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12. By completing the square, solve the equation $x^2 + 6x + 2 = 0$ leaving your solutions in the form $a \pm b\sqrt{c}$ where a, b and c are integers.

…….. (4 marks)

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13. By completing the square, solve the equation $x^2 + 7x + 11 = 0$ leaving your solutions in surd form.

…….. (4 marks)

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14. By completing the square, solve the equation $2x^2 + 8x - 2 = 0$ leaving your solutions in the form $a \pm b\sqrt{c}$ where a, b and c are integers.

…….. (5 marks)

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15. By completing the square, solve the equation $-x^2 - 7x + 2 = 0$ leaving your solutions in surd form.

…….. (5 marks)

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16. By completing the square, solve the equation $ax^2 + bx + c = 0$, leaving your answer in terms of a, b and c.

…….. (6 marks)