

Name: _____ Date: _____

QUADRATIC EQUATIONS

Instructions: Complete all questions in the Spiral, Develop, and Apply sections. Show all your working out.

SPIRAL

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|-----------------------------|------------------------|
| 1. Add 3478 and 295. | 3. Multiply 134 by 23. |
| 2. Subtract 506.7 from 800. | 4. Divide 872 by 16. |
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DEVELOP

<https://corbettmaths.com/2013/05/03/solving-quadratics-by-factorising/>

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| 1. Expand and simplify $(x + 2)(x + 3)$. | 16. Rearrange $x^2 + 3x = 10$ into the form $ax^2 + bx + c = 0$ and solve. |
| 2. Expand and simplify $(x - 4)(x + 5)$. | 17. Rearrange $2x^2 = 5x - 3$ into the form $ax^2 + bx + c = 0$ and solve. |
| 3. Expand and simplify $(2x + 1)(x - 3)$. | 18. A rectangle has length $(x + 4)$ cm and width x cm. Its area is 60 cm^2 . Write an equation and solve for x . |
| 4. Factorise $x^2 + 7x + 12$. | 19. The product of two consecutive integers is 72. Set up and solve a quadratic equation to find the integers. |
| 5. Factorise $x^2 - 5x + 6$. | 20. Solve $4x^2 - 25 = 0$. |
| 6. Factorise $x^2 - 81$. | 21. Factorise $3x^2 + 11x + 6$. |
| 7. Solve $x^2 + 6x + 8 = 0$. | 22. Solve $3x^2 + 11x + 6 = 0$. |
| 8. Solve $x^2 - 9x + 20 = 0$. | 23. Expand $(x + 7)^2$. |
| 9. Solve $x^2 - 49 = 0$. | 24. Expand $(3x - 2)^2$. |
| 10. Solve $2x^2 + 7x + 3 = 0$. | 25. Factorise $4x^2 - 9$. |
| 11. Solve $3x^2 - 10x - 8 = 0$. | 26. Solve $4x^2 - 9 = 0$. |
| 12. Write $x^2 + 8x + 15$ in the form $(x + a)(x + b)$. | 27. Find the roots of $x^2 + 2x - 15 = 0$. |
| 13. Write $x^2 - 10x + 24$ in the form $(x - a)(x - b)$. | 28. Find the roots of $2x^2 - 7x + 3 = 0$. |

14. Solve $(x + 4)(x - 2) = 0$.

29. Solve $5x^2 - 4x - 1 = 0$.

15. Solve $(2x - 1)(x + 5) = 0$.

30. Solve $x^2 = 4x + 12$.

APPLY

1. A triangle has a base of $(2x + 1)$ cm and a height of $(x - 2)$ cm. Its area is 24 cm^2 . Form and solve a quadratic equation to find x .

2. The sum of a number and its reciprocal is 2.9. Set up and solve a quadratic equation to find the number.