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The Quadratic Formula

Student Worksheet

Questions & Working Space

IGCSE Mathematics

Name: _____

Date: _____

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Note

How to use this worksheet. These questions are built *strictly* on *The Quadratic Formula* notes: standard form and the coefficients a, b and c, the formula itself, decimal and exact (surd) answers, the discriminant and the nature of the roots, finding unknown coefficients, the graphical meaning of the roots, and word problems.
Setting out your work. For every question, write down a, b and c *before* substituting, and calculate the discriminant $b^2 - 4ac$ as a separate step. Remember the $\pm$: unless the discriminant is zero, there are always two answers.
Working space. Ruled lines are provided after each question. Harder questions have a teal **Hint** box; try the question first and use the hint only if you are stuck.
Checking your answers. Full step-by-step solutions, a marking scheme for the exam paper, and a quick answer key are in the separate booklet *"The Quadratic Formula — Solutions & Answer Key."* Try each question honestly before you look.

Method

Throughout this worksheet you will need:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \qquad \text{for} \qquad ax^2 + bx + c = 0, \quad a \neq 0.$$

1 Part I — Topic-by-Topic Exercises

1.1 Standard Form and Coefficients

Exercise S1 *[Basic]*

State the values of a, b and c:

(a) $2x^2 + 7x - 4 = 0$ (b) $x^2 - 6x + 9 = 0$

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Exercise S2 *[Basic]*

State the values of a, b and c:

(a) $5x^2 - x = 0$ (b) $3x^2 - 12 = 0$

Exercise S3 *[Standard]*

Rearrange each equation into standard form and state a, b and c:

(a) $6x^2 = 5x + 4$ (b) $9x - 2x^2 = 3$

Exercise S4 *[Standard]*

Write $x(x + 7) = 18$ in standard form and state a, b and c.

Exercise S5 *[Intermediate]*

Write $(2x - 1)(x + 5) = 4$ in standard form and state a, b and c.

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Preview ends here

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