

# The Panda Math Tutor

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## The Quadratic Formula

Student Worksheet  
Questions & Working Space  
IGCSE Mathematics

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Prepared by  
**Nikolas Agisilaou**

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Teach → Practice → Reason → Apply → Challenge → Master

Contents

1 Part I — Topic-by-Topic Exercises 2

1.1 Standard Form and Coefficients . . . . . 2

1.2 Using the Quadratic Formula . . . . . 4

1.3 Decimal Answers . . . . . 6

1.4 Exact Answers in Surd Form . . . . . 9

1.5 The Discriminant . . . . . 11

1.6 Finding Unknown Coefficients . . . . . 13

1.7 Graphical Interpretation . . . . . 15

1.8 Word Problems and Applications . . . . . 17

2 Part II — Mixed Review 20

3 Part III — Examination-Style Practice 25

**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:

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

## 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)  $x^2 - 6x + 9 = 0$

**Exercise S2** [*Basic*]

State the values of  $a$ ,  $b$  and  $c$ :

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

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**Exercise S3** [*Standard*]

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

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

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**Exercise S4** [*Standard*]

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

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**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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