

Quadratic formula

Grade 6 | Higher | 13 questions, 45 marks

GCSE Maths topic practice



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Name: _____ **Date:** _____ **Score:** _____ / 45

1 Solve $x^2 + 5x + 3 = 0$

Give your solutions correct to 2 decimal places.

(3 marks)

Answer _____

2 Here is the quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Write down the values of a , b and c for $5x^2 - 3x - 11 = 0$, then substitute them into the formula. You do not need to simplify.

(2 marks)

Answer _____

3 Solve $x^2 - 4x - 9 = 0$

Give your solutions correct to 2 decimal places.

(3 marks)

Answer _____

4 Solve $x^2 - 6x - 5 = 0$

Give your answers in the form $p \pm \sqrt{q}$, where p and q are integers.

(3 marks)

Answer _____

5 Solve $2x^2 + 7x - 3 = 0$

Give your solutions correct to 2 decimal places.

(3 marks)

Answer _____

6 Solve $3x^2 - 7x - 4 = 0$

Give your solutions correct to 2 decimal places.

(3 marks)

Answer _____

7 Solve $3x^2 - 5x - 7 = 0$

Give your solutions correct to 2 decimal places.

(3 marks)

Answer _____

8 Solve $3x(x - 2) = 5$

Give your solutions correct to 3 significant figures.

(4 marks)

Answer _____

9 A ball is thrown upwards from a platform. Its height, h metres, above the ground after t seconds is given by

$$h = 2 + 12t - 5t^2$$

Work out how long it takes for the ball to hit the ground. Give your answer correct to 2 decimal places.

(4 marks)

Answer _____

10 Solve $x^2 + 6x + 4 = 0$

Give your solutions in the form $a \pm \sqrt{b}$, where a and b are integers.

(3 marks)

Answer _____

11 Solve $2x^2 - 8x + 5 = 0$

Give your solutions in the form $\frac{p \pm \sqrt{q}}{2}$, where p and q are integers.

(4 marks)

Answer _____

12 a. Using the discriminant, explain why the equation $x^2 + 3x + 7 = 0$ has no real solutions.

b. Write down the number of real solutions of the equation $x^2 - 6x + 9 = 0$. Give a reason for your answer.

(4 marks)

Answer _____

13 A rectangular lawn has length $(x + 3)$ metres and width x metres.

The area of the lawn is 20 m^2

a. Show that $x^2 + 3x - 20 = 0$

b. Find the perimeter of the lawn. Give your answer correct to 3 significant figures.

(6 marks)

Answer _____

End of questions | Total 45 marks