

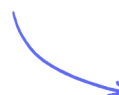
Calculator Questions

Quadratic Equations

Solving Quadratics by Factorising / The Quadratic Formula / Completing the Square
/ Deciding the Quadratic Method

Medium (6 questions)	/24
Hard (3 questions)	/10
Very Hard (3 questions)	/15
Total Marks	/49

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Medium Questions

- 1 Use the quadratic formula to solve $9x^2 - 12x - 23 = 0$.

Give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(4 marks)

- 2 Solve the equation $3x^2 - 2x - 10 = 0$.

Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(4 marks)

- 3 Use the quadratic formula to solve the equation $3x^2 + 7x - 11 = 0$ You must show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(4 marks)

- 4 Solve the equation $3x^2 - 2x - 2 = 0$.

Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(4 marks)

- 5 Solve the equation $6m^2 + 25m + 16 = 0$.

Show all your working and give your answers correct to 2 decimal places.

$m = \dots\dots\dots$ or $m = \dots\dots\dots$

(4 marks)

- 6 Solve the equation $2x^2 + 7x - 3 = 0$.

Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(4 marks)

Hard Questions

1 (a) Write $x^2 - 18x - 27$ in the form $(x + k)^2 + h$.

(2 marks)

(b) Use your answer to **part (a)** to solve the equation $x^2 - 18x - 27 = 0$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$

(2 marks)

2 The n th term of a sequence is $4n^2 + n + 3$.
Find the value of n when the n th term is 498.

$n = \dots\dots\dots$

(3 marks)

3 Solve $10m^2 + 9m - 162 = 0$.

$m = \dots\dots\dots$ or $m = \dots\dots\dots$

(3 marks)

Very Hard Questions

1 (a) Solve $2x^2 + 9x - 7 = 0$

Give your solutions correct to 3 significant figures.

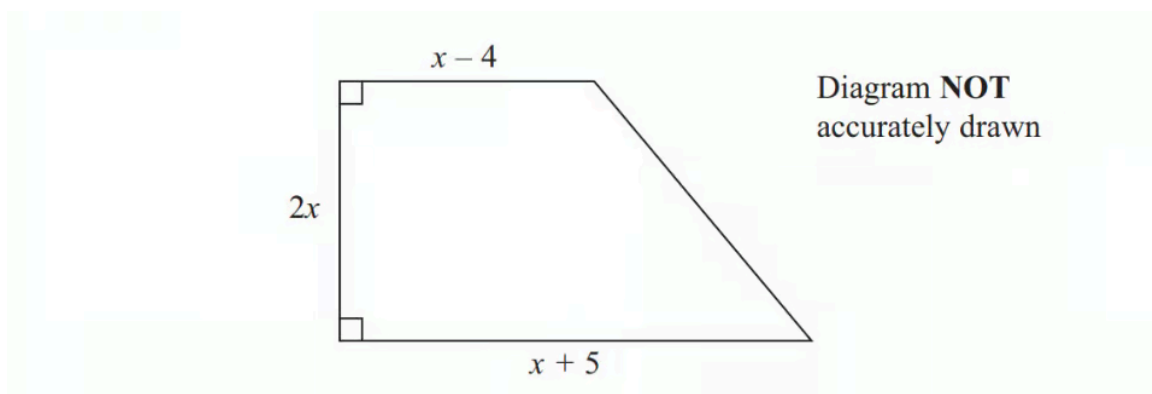
(3 marks)

(b) Solve $\frac{2}{y^2} + \frac{9}{y} - 7 = 0$

Give your solutions correct to 3 significant figures.

(2 marks)

2 (a) The diagram shows a trapezium.



All the measurements are in centimetres.

The area of the trapezium is 351 cm^2 .

Show that $2x^2 + x - 351 = 0$

(2 marks)

(b) Work out the value of x .

(3 marks)

3 Given that

$$2x - 1 : x - 4 = 16x + 1 : 2x - 1$$

find the possible values of x .

(5 marks)