

THE QUADRATIC FORMULA

GRADE 5

Examination Practice Questions

You should have:

A ruler, protractor, compasses, a pen, pencil, eraser, calculator.
For some questions, you may need tracing paper.

Instructions

- Use **black** ink or ball-point pen.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**

Information

- The marks for each question are shown in brackets.
- Use the number of marks for each question as a guide as to how much time to spend on each question. As a rough guide, you can multiply the number of marks by 1.2 to see how many minutes you should spend on a question.
- Questions been carefully compiled from or modelled on a variety of past papers and will generally get more challenging as the document progresses. Some of the later questions will go beyond the core grade level for this topic.

Advice

- Read each question carefully before you start to answer it.
- Don't forget to have fun.
- Check your answers at the end.

Q1.

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Solve

$$x^2 - 2x - 2 = 0$$

Give your answers to 1 decimal place.

.....
(3 marks)

Q2.

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Use the quadratic formula to solve the equation $w^2 + 5w - 7 = 0$.

Give your answers correct to 2 decimal places.

.....
(3 marks)

Q3.

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Solve $x^2 - 10x + 18 = 0$

Give your solutions correct to 3 significant figures.

.....
(3 marks)

Q4.

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Solve the equation $4x^2 + 2x - 7 = 0$.

Give your answers correct to two significant figures.

.....
(3 marks)

Q5.

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Solve

$$5x^2 - 4x - 3 = 0$$

Give your solutions correct to 3 significant figures.

.....
(3 marks)

Q6.

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Solve the equation $2x^2 + 5x - 4 = 0$.

Give your answers correct to one decimal place.

.....
(3 marks)

Q7.

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

Give your solutions correct to 2 decimal places.

.....
(3 marks)

Q8.

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Solve $\sqrt{2x + 3} = 3x$.

Give your answers to 4 significant figures.

.....
(3 marks)

Q9.

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Solve $x^2 = \frac{2x+7}{3}$ giving your answers correct to two decimal places.

.....
(4 marks)

Q10.

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Alison is using the quadratic formula to solve a quadratic equation.
She substitutes values into the formula and correctly gets

$$x = \frac{-7 \pm \sqrt{49 - 32}}{4}$$

Work out the quadratic equation that Alison is solving.
Give your answer in the form $ax^2 + bx + c = 0$, where a , b and c are integers.

.....
(3 marks)

The area of the trapezium ABCD is 25cm^2 .

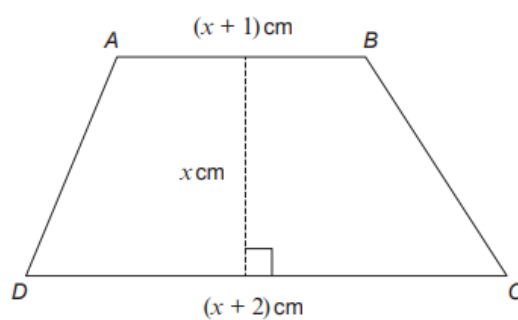
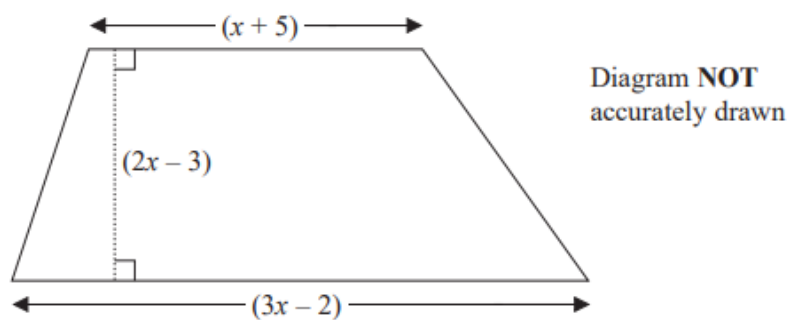


Diagram not drawn to scale

Solve the equation $2x^2 + 3x - 50 = 0$ to calculate the lengths AB and DC.
Give your answers correct to 1 decimal place.

.....
(4 marks)

The diagram shows a trapezium.



All measurements shown on the diagram are in centimetres.

The area of the trapezium is 133 cm^2 .

Solve the equation $8x^2 - 6x - 275 = 0$ to find the value of x .

.....
(3 marks)

The diagram shows a 6-sided shape.

All the corners are right angles.

All the measurements are given in centimetres.

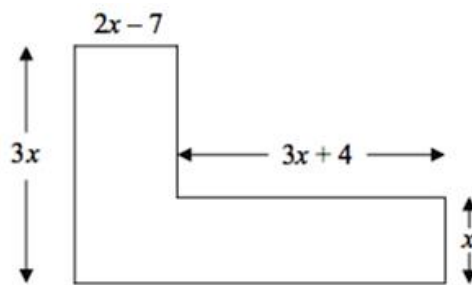


Diagram **NOT**
accurately drawn

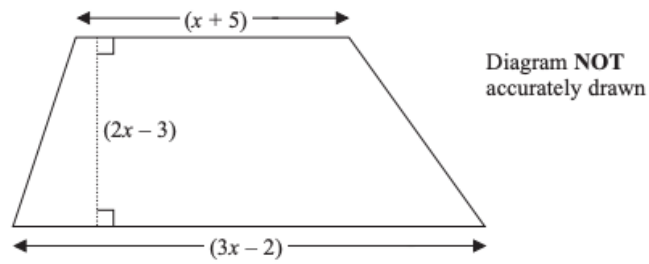
The area of the shape is 85 cm^2 .

Solve $9x^2 - 17x - 85 = 0$ to find the value of x .

Give your solutions correct to 3 significant figures.

.....
(3 marks)

The diagram shows a trapezium.



All measurements shown on the diagram are in centimetres.

The area of the trapezium is 133 cm^2

Solve the equation $8x^2 - 6x - 275 = 0$ to find the height of the trapezium.

.....
(3 marks)

A cuboid has length x cm.

The width of the cuboid is 4 cm less than its length.

The height of the cuboid is half of its length.

The surface area of the cuboid is 90 cm^2 .

Solve the equation $2x^2 - 6x - 45 = 0$ to work out the volume of the cuboid.