

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

# GCSE (1 – 9)

## Quadratic Formula

### Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

### Information

- The marks for each question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

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

Give your solutions correct to 2 decimal places.

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**(Total for question 1 is 3 marks)**

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2 Solve  $2x^2 + 13x + 7 = 0$

Give your solutions correct to 2 decimal places.

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**(Total for question 2 is 3 marks)**

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3 Solve  $3x^2 + 2x - 13 = 0$

Give your solutions correct to 1 decimal place.

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**(Total for question 3 is 3 marks)**

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

Give your solutions correct to 3 significant figures.

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**(Total for question 4 is 3 marks)**

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5 Solve  $3x^2 - 11x - 13 = 0$

Give your solutions correct to 3 significant figures.

.....  
**(Total for question 5 is 3 marks)**

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6 Solve  $5x^2 = 6x + 3$

Give your solutions correct to 3 significant figures.

.....  
**(Total for question 6 is 3 marks)**

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

Give your answers in the form  $a \pm b\sqrt{c}$ .

.....  
**(Total for question 7 is 4 marks)**

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8 Solve  $x^2 - 4x - 1 = 0$

Give your answers in the form  $a \pm \sqrt{b}$ .

.....  
**(Total for question 8 is 4 marks)**

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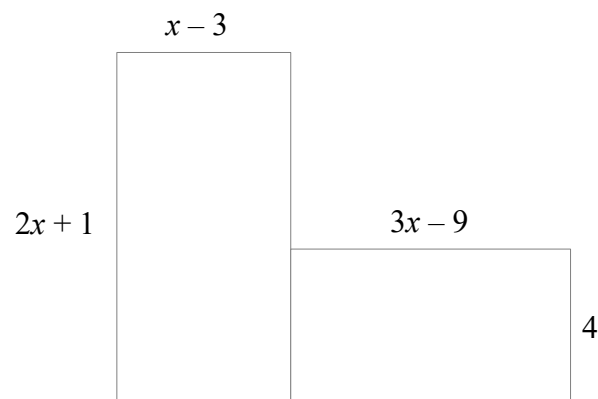
9 Solve  $x^2 + 6x - 11 = 0$

Give your answers in the form  $a \pm b\sqrt{c}$ .

.....  
**(Total for question 9 is 4 marks)**

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- 10 The diagram shows a six sided shape formed from two rectangles.  
All measurements are given in centimetres.



The area of the shape is  $24\text{cm}^2$

- (a) Show that  $2x^2 + 7x - 63 = 0$

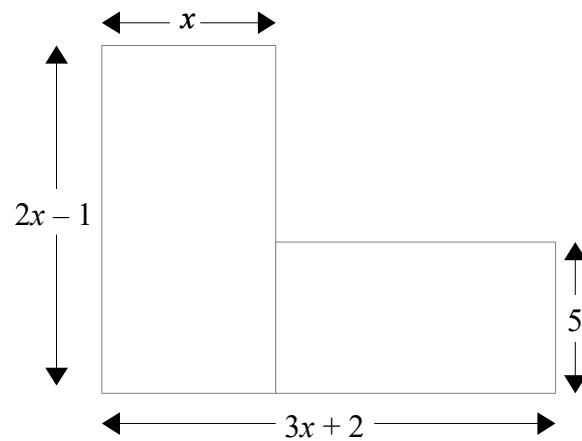
- (b) Find the value of  $x$   
Give your answer to 3 significant figures

(2)

.....  
(3)

**(Total for question 10 is 5 marks)**

- 11 The diagram shows a six sided shape formed from two rectangles.  
All measurements are given in centimetres.



The area of the shape is  $35\text{cm}^2$

- (a) Show that  $2x^2 + 8x - 25 = 0$

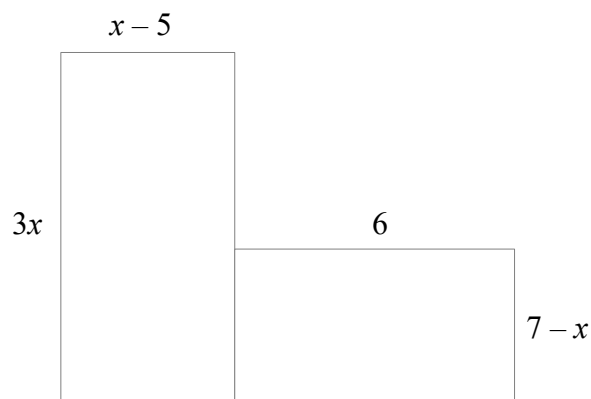
- (b) Find the value of  $x$   
Give your answer to 3 significant figures

(2)

.....  
(3)

(Total for question 11 is 5 marks)

- 12 The diagram shows a six sided shape formed from two rectangles.  
All measurements are given in centimetres.



The area of the shape is  $26\text{cm}^2$

- (a) Show that  $3x^2 - 21x + 16 = 0$

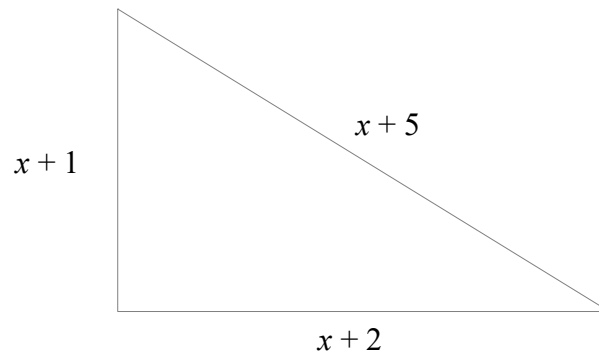
- (b) Find the value of  $x$   
Give your answer to 3 significant figures

(2)

.....  
(3)

**(Total for question 12 is 5 marks)**

- 13 The diagram shows a right angled triangle.  
All measurements are given in centimetres.



- (a) Show that  $x^2 - 4x - 20 = 0$

- (b) Find the value of  $x$

(3)

Give your answer in the form  $a \pm b\sqrt{c}$ .

.....  
(3)

**(Total for question 13 is 6 marks)**