

Name:.....

Total Marks:.....

# GCSE (9-1) Grade 5 Solving Quadratics by factorisation



## Instructions

Use **black** ink or ball-point pen.

**Fill in the boxes** at the top of this page with your name.

Answer **all** questions.

Answer the questions in the spaces provided

– there may be more space than you need.

**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.

Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed

## Advice

Read each question carefully before you start to answer it

Attempt every question

Check your answers if you have time at the end

1. (i) Factorise  $x^2 - 4x - 45$

.....

(ii) Solve the equation

$$x^2 - 4x - 45 = 0$$

.....

**(Total 3 marks)**

2. (i) Factorise  $x^2 - 7x + 12$

.....

(ii) Solve the equation

$$x^2 - 7x + 12 = 0$$

.....

**(Total 3 marks)**

3. (a) Factorise  $x^2 - 3x - 18$

.....  
(2)

(b) Solve  $x^2 - 3x - 18 = 0$

$x =$ .....

or  $x =$ .....  
(1)

**(Total 3 marks)**

4. (a) Factorise  $x^2 + 6x + 8$

.....  
(2)

(b) Solve  $x^2 + 6x + 8 = 0$

$x =$ .....

or  $x =$ .....  
(1)

**(Total 3 marks)**

5. (a) Factorise  $x^2 - x - 56$

..... (2)

(b) Solve  $x^2 - x - 56 = 0$

$x =$ .....

or  $x =$ .....

(1)

**(Total 3 marks)**

6. (i) Factorise  $x^2 + 9x + 20$

.....

(ii) Solve the equation

$$x^2 + 9x + 20 = 0$$

.....

**(Total 3 marks)**

7. (i) Factorise  $x^2 - 12x + 35$

.....

(ii) Solve the equation

$$x^2 - 12x + 35 = 0$$

.....

**(Total 3 marks)**

8. (i) Factorise  $x^2 - x - 72$

.....

(ii) Solve the equation

$$x^2 - x - 72 = 0$$

.....

**(Total 3 marks)**

9. (a) Factorise  $x^2 - 15x + 56$

..... (2)

(b) Solve  $x^2 - 15x + 56 = 0$

$x =$ .....

or  $x =$ ..... (1)

**(Total 3 marks)**

10. (a) Factorise  $x^2 + 9x + 18$

..... (2)

(b) Solve  $x^2 + 9x + 18 = 0$

$x =$ .....

or  $x =$ ..... (1)

**(Total 3 marks)**

11. (a) Factorise  $x^2 - 2x - 48$

..... (2)

(b) Solve  $x^2 - 2x - 48 = 0$

$x =$ .....

or  $x =$ ..... (1)

**(Total 3 marks)**

12. (i) Factorise  $x^2 + 10x + 24$

.....

(ii) Solve the equation

$$x^2 + 10x + 24 = 0$$

.....  
**(Total 3 marks)**

13.

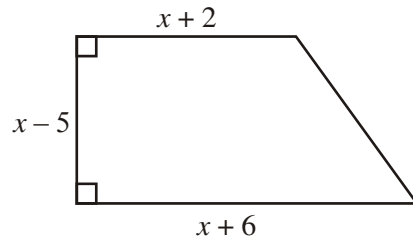


Diagram **NOT** accurately drawn

The diagram shows a trapezium.

The lengths of three of the sides of the trapezium are  $x - 5$ ,  $x + 2$  and  $x + 6$ . All measurements are given in centimetres.

The area of the trapezium is  $36 \text{ cm}^2$ .

(a) Show that  $x^2 - x - 56 = 0$

(4)

(b) (i) Solve the equation  $x^2 - x - 56 = 0$

.....

(ii) Hence find the length of the shortest side of the trapezium.

..... cm

(4)

(Total 8 marks)



14. The diagram below shows a 6-sided shape.

All the corners are right angles.

All measurements are given in centimetres.

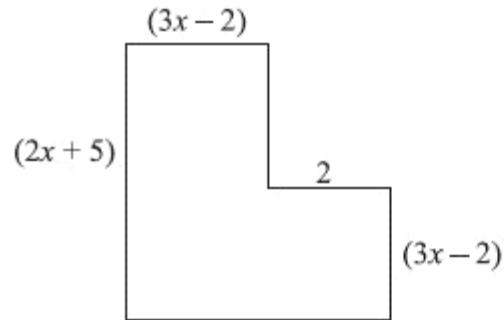


Diagram **NOT**  
accurately drawn

The area of the shape is  $25 \text{ cm}^2$ .

(a) Show that  $6x^2 + 17x - 39 = 0$

(3)

(b) (i) Solve the equation

$$6x^2 + 17x - 39 = 0$$

$$x = \dots\dots\dots \text{ or } x = \dots\dots\dots$$

(ii) Hence work out the length of the longest side of the shape.

.....cm

(4)

(Total 7 marks)