

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

## GCSE (1 – 9)

# Expanding and Factorising Quadratics

### 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

mathsgenie.co.uk



- 1 Expand and simplify  $(x+7)(x-3)$

$$x^2 - 3x + 7x - 21$$

$$x^2 + 4x - 21$$

(Total for Question 1 is 2 marks)

- 2 (a) Expand and simplify  $(2p-3)(p-5)$

$$2p^2 - 10p - 3p + 15$$

$$2p^2 - 13p + 15$$

(2)

- (b) Factorise  $a^2 + 15a + 36$

36

|   |    |
|---|----|
| 1 | 36 |
| 2 | 18 |
| 3 | 12 |
| 4 | 9  |
| 6 | 6  |

$$(a+3)(a+12)$$

$$(a+3)(a+12)$$

(2)

(Total for Question 2 is 4 marks)

- 3 (a) Expand and simplify  $(x+3)(x-3)$

$$x^2 - 3x + 3x - 9$$

$$x^2 - 9$$

- (b) Factorise  $x^2 - 8x + 7$

7

|   |   |
|---|---|
| 1 | 7 |
|---|---|

$$(x-1)(x-7)$$

(2)

(Total for Question 3 is 4 marks)



- 4 Expand and simplify  $(m+3)(m+4)$

$$m^2 + 4m + 3m + 12$$

$$m^2 + 7m + 12$$

(Total for Question 4 is 2 marks)

- 5 (a) Expand and simplify  $(2x+3)(3x-1)$

$$6x^2 - 2x + 9x - 3$$

$$6x^2 + 7x - 3$$

(2)

- (b) Factorise  $x^2 + 10x + 25$

$$\begin{array}{cc} 25 & \\ 1 & 25 \\ 5 & 5 \end{array}$$

$$(x+5)(x+5)$$

(1)

(Total for Question 5 is 3 marks)

- 6 (a) Expand and simplify  $(4y+3)(2y-3)$

$$8y^2 - 12y + 6y - 9$$

$$8y^2 - 6y - 9$$

(2)

- (b) Factorise  $x^2 + 7x + 6$

$$\begin{array}{cc} 6 & \\ 1 & 6 \\ 2 & 3 \end{array}$$

$$(x+1)(x+6)$$

(2)

(Total for Question 6 is 4 marks)



7 Expand and simplify  $(x-2)(x-9)$

$$x^2 - 9x - 2x + 18$$

$$x^2 - 11x + 18$$

(Total for Question 7 is 2 marks)

8 (a) Expand and simplify  $(5h+2)(h+4)$

$$5h^2 + 20h + 2h + 8$$

$$5h^2 + 22h + 8$$

(2)

(b) Factorise  $x^2 - 49$

$$(x+7)(x-7)$$

(1)

(Total for Question 8 is 3 marks)

9 (a) Expand and simplify  $(3x-5)(2x-3)$

$$6x^2 - 9x - 10x + 15$$

$$6x^2 - 19x + 15$$

(2)

(b) Factorise  $n^2 - 3n - 18$

$$\begin{array}{r} 18 \\ 1 \quad 18 \\ 2 \quad 9 \\ 3 \quad 6 \end{array}$$

$$(n+3)(n-6)$$

(2)

(Total for Question 9 is 4 marks)



10 Expand and simplify  $(x + 6)(3x + 8)$

$3x^2 + 8x + 18x + 48$

$3x^2 + 26x + 48$   
(Total for Question 10 is 2 marks)

11 (a) Expand and simplify  $(x - 6)(x - 7)$

$x^2 - 7x - 6x + 42$

$x^2 - 13x + 42$   
(2)

(b) Factorise  $x^2 - 16$

$(x + 4)(x - 4)$   
(1)

(Total for Question 11 is 3 marks)

12 (a) Expand and simplify  $(2x + 1)(5x - 9)$

$10x^2 - 18x + 5x - 9$

$10x^2 - 13x - 9$   
(2)

(b) Factorise  $x^2 - 13x + 36$

36

|   |    |
|---|----|
| 1 | 36 |
| 2 | 18 |
| 3 | 12 |
| 4 | 9  |
| 6 | 6  |

$(x - 4)(x - 9)$   
(2)

(Total for Question 12 is 4 marks)



13 Expand and simplify  $(a-7)^2$

$$(a-7)(a-7)$$

$$a^2 - 7a - 7a + 49$$

$$a^2 - 14a + 49$$

(Total for Question 13 is 2 marks)

14 (a) Expand and simplify  $(2x-1)(x+4)$

$$2x^2 + 8x - x - 4$$

$$2x^2 + 7x - 4$$

(2)

(b) Factorise  $x^2 - 100$

$$(x+10)(x-10)$$

(1)

(Total for Question 14 is 3 marks)

15 (a) Expand and simplify  $(3d-2)(d+7)$

$$3d^2 + 21d - 2d - 14$$

$$3d^2 + 19d - 14$$

(2)

(b) Factorise  $x^2 - 3x - 40$

|   |    |
|---|----|
|   | 40 |
| 1 | 40 |
| 2 | 20 |
| 4 | 10 |
| 5 | 8  |

$$(x+5)(x-8)$$

(2)

(Total for Question 15 is 4 marks)



16 Factorise  $n^2 + 3n - 28$

2 8  
1 28  
2 14  
4 7

$$(n + 7)(n - 4)$$

(Total for Question 16 is 2 marks)

17 (a) Expand and simplify  $(a - 5)(a + 6)$

$$a^2 + 6a - 5a - 30$$

$$\frac{a^2 + a - 30}{(2)}$$

(b) Factorise  $b^2 - 81$

$$(b + 9)(b - 9)$$

(1)

(Total for Question 17 is 3 marks)

18 (a) Expand and simplify  $(2x + 5)(x + 9)$

$$2x^2 + 18x + 5x + 45$$

$$2x^2 + 23x + 45$$

$$\frac{2x^2 + 23x + 45}{(2)}$$

(b) Factorise  $y^2 - 7y + 12$

1 2  
1 12  
2 6  
3 4

$$(y - 3)(y - 4)$$

(2)

(Total for Question 18 is 4 marks)



19 Factorise  $m^2 - m - 30$

|   |    |
|---|----|
|   | 30 |
| 1 | 30 |
| 2 | 15 |
| 3 | 10 |
| 5 | 6  |

$$(m + 5)(m - 6)$$

(Total for Question 19 is 2 marks)

20 (a) Expand and simplify  $(5a - 1)(2a - 7)$

$$10a^2 - 35a - 2a + 7$$

$$10a^2 - 37a + 7$$

(2)

(b) Factorise  $b^2 - 144$

$$(b + 12)(b - 12)$$

(1)

(Total for Question 20 is 3 marks)

21 (a) Expand and simplify  $(7x + 1)(x + 5)$

$$7x^2 + 35x + x + 5$$

$$7x^2 + 36x + 5$$

(2)

(b) Factorise  $y^2 + 13y + 30$

|   |    |
|---|----|
| 1 | 30 |
| 2 | 15 |
| 3 | 10 |
| 5 | 6  |

$$(y + 3)(y + 10)$$

(2)

(Total for Question 21 is 4 marks)

