

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

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

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

$$\underline{x^2 + 4x - 21}$$

(Total for Question 1 is 2 marks)

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

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

$$\underline{2p^2 - 13p + 15}$$

(2)

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

36

1	36
2	18
3	12
4	9
6	6

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

$$\underline{(a+3)(a+12)}$$

(2)

(Total for Question 2 is 4 marks)

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

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

$$\underline{x^2 - 9}$$

(2)

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

7

1 7

$$\underline{(x-1)(x-7)}$$

(2)

(Total for Question 3 is 4 marks)

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

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

$$\underline{m^2 + 7m + 12}$$

(Total for Question 4 is 2 marks)

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

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

$$\underline{6x^2 + 7x - 3}$$

(2)

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

$$\begin{array}{r} 25 \\ 1 \quad 25 \\ 5 \quad 5 \end{array}$$

$$\underline{(x+5)(x+5)}$$

(1)

(Total for Question 5 is 3 marks)

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

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

$$\underline{8y^2 - 6y - 9}$$

(2)

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

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

$$\underline{(x+1)(x+6)}$$

(2)

(Total for Question 6 is 4 marks)

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

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

$$\underline{x^2 - 11x + 18}$$

(Total for Question 7 is 2 marks)

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

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

$$\underline{5h^2 + 22h + 8}$$

(2)

(b) Factorise $x^2 - 49$

$$\underline{(x+7)(x-7)}$$

(1)

(Total for Question 8 is 3 marks)

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

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

$$\underline{6x^2 - 19x + 15}$$

(2)

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

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

$$\underline{(n+3)(n-6)}$$

(2)

(Total for Question 9 is 4 marks)

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

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

$$\underline{3x^2 + 26x + 48}$$

(Total for Question 10 is 2 marks)

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

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

$$\underline{x^2 - 13x + 42}$$

(2)

(b) Factorise $x^2 - 16$

$$\underline{(x+4)(x-4)}$$

(1)

(Total for Question 11 is 3 marks)

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

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

$$\underline{10x^2 - 13x - 9}$$

(2)

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

	36
1	36
2	18
3	12
4	9
6	6

$$\underline{(x-4)(x-9)}$$

(2)

(Total for Question 12 is 4 marks)

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

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

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

$$\underline{a^2 - 14a + 49}$$

(Total for Question 13 is 2 marks)

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

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

$$\underline{2x^2 + 7x - 4}$$

(2)

(b) Factorise $x^2 - 100$

$$\underline{(x+10)(x-10)}$$

(1)

(Total for Question 14 is 3 marks)

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

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

$$\underline{3d^2 + 19d - 14}$$

(2)

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

	40
1	40
2	20
4	10
5	8

$$\underline{(x+5)(x-8)}$$

(2)

(Total for Question 15 is 4 marks)

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

28
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 $y^2 - 7y + 12$

12
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 $(5a - 1)(2a - 7)$

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

$$\underline{10a^2 - 37a + 7}$$

(2)

(b) Factorise $b^2 - 144$

$$\underline{(b + 12)(b - 12)}$$

(1)

(Total for Question 20 is 3 marks)

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

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

$$\underline{7x^2 + 36x + 5}$$

(2)

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

1 30
2 15
3 10
5 6

$$\underline{(y + 3)(y + 10)}$$

(2)

(Total for Question 21 is 4 marks)