1. (a) Factorise fully $2x^2 - 4xy$

$2x(x - 2y)$

(2)

(b) Factorise $p^2 - 6p + 8$

$(p - 2)(p - 4)$

(2)

(c) Simplify $\dfrac{(x + 2)^2}{x + 2}$

$x + 2$

(1)

(d) Factorise $x^2 - 100$

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

(2)

(7 marks)

2. (a) Simplify $x^5 \times x^4$

x^9

(1)

(b) Simplify $y^7 \div y^2$

y^5

(1)

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

$6a + 15 + 5a - 10$

$11a + 5$

(2)

(d) Expand and simplify $(y + 5)(y + 7)$

$y^2 + 7y + 5y + 35$

$y^2 + 12y + 35$

(2)

(e) Factorise $p^2 - 6p + 5$

$(p - 1)(p - 5)$

(2)

(8 marks)

3. (a) Expand and simplify $(p + 9)(p - 4)$

$$p^2 - 4p + 9p - 36$$

$$\underline{p^2 + 5p - 36}$$
(2)

(b) Factorise $x^2 - 11x + 18$

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

(c) Factorise $x^2 - 49$

$$(x + 7)(x - 7)$$
(2)

(d) Simplify $(9x^8y^3)^{\frac{1}{2}}$

$$3x^4 y^{\frac{3}{2}}$$
(2)

(8 marks)

4. (a) Expand $3(2y - 5)$

$$6y - 15$$
(1)

(b) Factorise completely $8x^2 + 4xy$

$$4x(2x + y)$$
(2)

(c) Expand and simplify $(p + 7)(p - 8)$

$$p^2 - 8p + 7p - 56$$

$$p^2 - p - 56$$
(2)

(d) Factorise $x^2 - 169$

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

(7 marks)

5. (a) Expand $4(3x + 5)$

$12x + 20$

(1)

(b) Expand and simplify $3(x - 4) - 2(x + 5)$

$3x - 12 - 2x - 10$

$x - 22$

(2)

(c) Expand and simplify $(x + 4)(x + 6)$

$x^2 + 6x + 4x + 24$

$x^2 + 10x + 24$

(2)

(5 marks)

6. (a) Factorise $x^2 + 7x$

$x(x + 7)$

(1)

(b) Factorise $y^2 - 10y + 16$

$(y - 8)(y - 2)$

(2)

(c) Solve $y^2 - 10y + 16 = 0$

$y = 8, y = 2$

(2)

(5 marks)

7. (a) Expand and simplify $3(x + 4) + 2(5x - 1)$

$3x + 12 + 10x - 2$

..........$13x + 10$..........
(2)

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

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

..........$2x^2 - 7x - 4$..........
(2)

(c) Factorise completely $6y^2 - 9xy$

..........$3y(2y - 3x)$..........
(2)

(6 marks)

8. (a) Expand $x(x + 2)$

..........$x^2 + 2x$..........
(2)

(b) Expand and simplify $(x + 3)(x - 4)$

$x^2 - 4x + 3x - 12$

..........$x^2 - x - 12$..........
(2)

(c) Factorise completely $2y^2 - 4y$

$2y(y - 2)$

....
(2)

(d) Factorise $x^2 - 9$

..........$(x + 3)(x - 3)$..........
(2)

(8 marks)

9. (a) Expand and simplify $(3x + 5)(4x - 1)$

$$12x^2 - 3x + 20x - 5$$

$$12x^2 + 17x - 5$$

(2)

(*b*) Factorise $x^2 - 3x - 10$

$$(x - 5)(x + 2)$$

(2)

(c) Solve $x^2 - 3x - 10 = 0$

$x =$ 5 and $x = -2$

(2)

(6 marks)

10. (a) Expand $3(4x + y)$

(2)

$$12x + 3y$$

(1)

(b) Expand $5p(p - 3)$

$$5p^2 - 15p$$

(2)

(c) Expand and simplify $(y + 8)(y - 3)$

$$y^2 - 3y + 8y - 24$$

$$y^2 + 5y - 24$$

(2)

(d) Expand and simplify $(2t - 3)^2$

$$(2t - 3)(2t - 3)$$

$$4t^2 - 6t - 6t + 9$$

$$4t^2 - 12t + 9$$

(2)

(7 marks)

11. (a) Factorise fully $6y^2 + 12y$

(2)

$6y(y + 2)$

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

(2)

$(k + 3)(k + 10)$

(c) Solve $k^2 + 13k + 30 = 0$

(2)

$k = -3$ and $k = -10$

(6 marks)

12. (a) Factorise $5x - 10$

$5(x - 2)$

(1)

(b) Factorise fully $2p^2 - 4pq$

$2p(p - 2q)$

(2)

(c) Expand and simplify $(t + 5)(t - 4)$

$t^2 - 4t + 5t - 20$

$t^2 + t - 20$

(2)

(d) Factorise $x^2 + 17x + 60$

$(x + 12)(x + 5)$

(2)

(e) Factorise $x^2 - 144$

$(x + 12)(x - 12)$

(2)

(9 marks)

13. (a) Factorise $8x - 20$

$4(2x - 5)$

(1)

(b) Factorise fully $10x^2 - 15xy$

$5x(2x - 3y)$

(2)

(c) Factorise $x^2 - 64$

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

(2)

(d) Expand and simplify $(x + 7)(x - 5)$

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

$x^2 + 2x - 35$

(2)

(e) Factorise $x^2 + 2x - 15$

$(x + 5)(x - 3)$

(2)

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

$x = -5$ and $x = 3$

(2)

(11 marks)