1 (a) Simplify $(m^{-2})^5$

.....

(1)

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

.....

(2)

(Total for Question 1 is 3 marks)

---

2 (a) Expand $2m(m + 3)$

.....

(1)

(b) Factorise fully $3xy^2 - 6xy$

.....

(2)

(Total for Question 2 is 3 marks)

3 (a) Simplify $6g - 5h - 4g + 2h$

.....

(2)

(b) Factorise $y^2 - 2y$

.....

(1)

(c) Simplify fully $\dfrac{p^3 \times p^4}{p^2}$

.....

(2)

(Total for Question 3 is 5 marks)

4 (a) Simplify $p^2 \times p^5$

.....

(1)

(b) Simplify $g^6 \div g^4$

.....

(1)

(c) Simplify $(k^3)^2$

.....

(1)

(d) Expand and simplify $3(m + 4) – 2(4m + 1)$

.....

(2)

(e) Factorise $n^2 – 7n$

.....

(1)

(Total for Question 4 is 6 marks)

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

.....

(2)

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

.....

(2)

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

.....

(1)

(d) Simplify $2a^2b \times 3a^3b$

.....

(2)

(Total 7 marks)

6 (a) Simplify $4y + 2x - 3 + 3x + 8$

.....

(2)

(b) Factorise fully $9x^2 - 6xy$

.....

(2)

(c) Expand $4(x + 2)$

.....

(1)

(d) Expand and simplify $(x - 5)(x + 3)$

.....

(2)

(Total for Question 6 is 7 marks)

7 (a) Factorise $3e^2 + 5e$

.....

(1)

(b) Solve $7(k - 3) = 3k - 5$

$k =$ .....

(3)

(c) Expand and simplify $(2x + 3)(x - 8)$

.....

(2)

(d) Solve $\dfrac{7 - 3f}{4} = 2$

$f =$ .....

(3)

(Total for Question 7 is 9 marks)

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

.....

(1)

(b) Expand and simplify $3(y + 2) + 4(x - 1)$

.....

(2)

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

.....

(2)

(d) Factorise fully $8a^2 + 12a$

.....

(2)

(e) Factorise $y^2 - y - 2$

.....

(2)

(Total for Question 8 is 9 marks)

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

.....

(2)

(b) Solve $\frac{5w - 8}{3} = 4w + 2$

$w =$ .....

(3)

(c) Factorise $x^2 - 49$

.....

(1)

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

.....

(2)

(Total for Question 9 is 8 marks)

10 (a) Simplify $3a \times 5b \times 2c$

.....

(1)

(b) Factorise $3y + 6$

.....

(1)

(c) Expand $x(x - 3)$

.....

(1)

(Total for Question 10 is 3 marks)

---

11 (a) (i) Factorise $x^2 - 12x + 27$

.....

(ii) Solve the equation $x^2 - 12x + 27 = 0$

.....

(3)

(b) Factorise $y^2 - 100$

.....

(1)

(Total for Question 11 is 4 marks)

12 (a) Simplify $x^5 \times x^4$

.....

(1)

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

.....

(1)

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

.....

(2)

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

.....

(2)

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

.....

(2) **Q8**

(Total 8 marks)

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

.....

(2)

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

.....

(2)

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

.....

(2)

(Total for Question 13 is 6 marks)

14 (a) Factorise $x^2 + 7x$

.....

(1)

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

.....

(2)

*(c) (i) Factorise $2t^2 + 5t + 2$

.....

(ii) t is a positive whole number.

The expression $2t^2 + 5t + 2$ can never have a value that is a prime number.

Explain why.

.....

.....

.....

(3)

(Total for Question 14 is 6 marks)

15 $f = 3g + 7h$

(a) Work out the value of f when $g = -5$ and $h = 2$

$f =$ .....

(2)

(b) Factorise $3x + 6$

.....

(1)

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

.....

(2)

(d) Simplify $m^5 \times m^3$

.....

(1)

(e) Simplify $\dfrac{p^6}{p^2}$

.....

(1)

(Total for Question 15 is 7 marks)

16 (a) Expand $x(x + 2)$

.....

(2)

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

.....

(2)

(c) Factorise completely $2y^2 – 4y$

.....

(2)

(d) Factorise $x^2 – 9$

.....

(1)

(Total 7 marks)

17 (a) Expand and simplify $3(x + 5) + 2(5x - 6)$

.....

(2)

(b) Simplify $\frac{2x+4}{2}$

.....

(1)

(c) Factorise $5x + 10$

.....

(1)

(d) Factorise fully $x^2y + xy^2$

.....

(2) **Q16**

(Total 6 marks)

18 (a) Factorise $2x^2 - 9x + 4$

.....

(2)

Hence, or otherwise,

(b) solve $2x^2 - 9x + 4 = (2x - 1)^2$

.....

(4)

(Total 6 marks)

19 (a) $p = 2$
$q = -4$

Work out the value of $3p + 5q$

.....

(2)

(b) Factorise $3m - 6$

.....

(1)

(Total 3 marks)

20 (a) Factorise $6x + 4$

.....

(1)

(b) Factorise fully $9x^2y - 15xy$

.....

(2)

(Total 3 marks)

21 (a) Factorise $x^2 + px + qx + pq$

.....

(2)

(b) Factorise $m^2 - 4$

.....

(1)

(c) Write as a single fraction in its simplest form $\frac{2}{x-4} - \frac{1}{x+3}$

.....

(3)

(Total 6 marks)