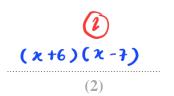
1 (a) Factorise $x^2 - x - 42$

$$(x+6)(x-7)$$



(Total for Question 1 is 2 marks)

2 (b) Factorise fully $16m^3g^3 + 24m^2g^5$

$$8 \left(2m^{3}g^{3} + 3m^{2}g^{5}\right) - \text{factorise integers}$$

$$= 8 m^{2} \left(2mg^{3} + 3g^{5}\right) - \text{factorise m terms}$$

$$= 8 m^{2}g^{3} \left(2m + 3g^{2}\right) - \text{factorise g terms}$$

$$= 8 m^{2}g^{3} \left(2m + 3g^{2}\right) - \text{factorise g terms}$$

(c) (i) Factorise $y^2 - 2y - 48$

$$y = \frac{2 \pm \sqrt{(-2)^2 - 4(-48)}}{2}$$

$$= \frac{2 \pm 14}{2}$$

$$y = 8 \text{ or } -6$$
Hence, $(y+6)(y-8)$

(ii) Hence, solve $y^2 - 2y - 48 = 0$

3 (b) Factorise fully 9ef - 12f

4 (b) Factorise fully $5y + 20y^2$

5 (a) Factorise fully $25a^4c^7d + 45a^9c^3h$

(Total for Question 5 is 2 marks)

6 (i) Factorise $x^2 + 2x - 24$

$$(x-4)(x+6)$$

(ii) Hence solve $x^2 + 2x - 24 = 0$

(Total for Question 6 is 3 marks)

7 (c) Factorise
$$x^2 - 11x + 24$$

$$x = \frac{11 \pm \sqrt{(-11)^2 + (1)(24)}}{2}$$

$$= \frac{11 \pm \sqrt{25}}{2}$$

$$= \frac{11 + 5}{2} \quad \text{or} \quad \frac{11 - 5}{2}$$

$$= 8 \quad \text{of} \quad 3$$

$$= (x - 8)(x - 3) \quad 1$$

(2)

(Total for Question 7 is 2 marks)

8 (b) Factorise fully $8p^2 - 2p$

9 (a) Factorise fully $15y^4 + 20uy^3$

(Total for Question 9 is 2 marks)

10 (b) (i) Factorise $x^2 + 5x - 36$

$$\chi^{2} + 5\chi - 36$$
 $(\chi + 9)(\chi - 4)$ 2

(ii) Hence, solve $x^2 + 5x - 36 = 0$

$$(x+9)(x-4) = 0$$

 $x+9=0$ or $x-4=0$
 $x=-9$ $x=4$

(Total for Question 10 is 3 marks)

11 (b) (i) Factorise $x^2 + 8x - 9$

$$(x-1)(x+q)$$

(ii) Hence, solve $x^2 + 8x - 9 = 0$

(Total for Question 11 is 3 marks)

12 (d) Factorise fully $10c^3d^2 + 15cd^4$

$$5(2c^3d^2+3cd^4)$$

 $5c(2c^2d^2+3d^4)$
 $5cd^2(2c^2+3d^2)$ (1)

(2)

13 (a) Factorise
$$9x^2 - 4y^2$$

$$(3z)^{2} - (2y)^{2}$$

$$(3z + 2y) (3x - 2y)$$

(Total for Question 13 is 2 marks)

14 (i) Factorise $x^2 + 5x - 24$

(ii) Hence, solve $x^2 + 5x - 24 = 0$

(Total for Question 14 is 3 marks)

15 (c) Factorise $n^2 - 7n + 12$



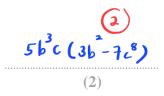
(Total for Question 15 is 2 marks)

16 (b) (i) Factorise $y^2 - 2y - 35$

(ii) Hence, solve $y^2 - 2y - 35 = 0$

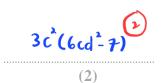
(Total for Question 16 is 3 marks)

17 (b) Factorise fully $15b^5c - 35b^3c^9$



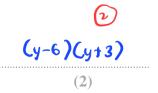
(Total for Question 17 is 2 marks)

18 (a) Factorise fully $18c^3d^2 - 21c^2$



(b) (i) Factorise $y^2 - 3y - 18$

$$(y-6)(y+3)$$

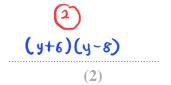


(ii) Hence, solve $y^2 - 3y - 18 = 0$



(Total for Question 18 is 5 marks)

19 (a) Factorise $y^2 - 2y - 48$



(Total for Question 19 is 2 marks)

20 (c) Factorise fully $14x^2y^4 + 21x^3y^2$

$$7(2x^{2}y^{4} + 3x^{3}y^{2})$$

 $7x^{2}(2y^{4} + 3xy^{2})$ (1)
 $7x^{2}y^{2}(2y^{2} + 3x)$ (1)

21 (b) Factorise $y^2 - 9y + 20$

(Total for Question 21 is 2 marks)

22 (c) Factorise fully $16a^2b^3 + 20a^3b$

(d) (i) Factorise $x^2 + 9x - 22$

(ii) Hence solve $x^2 + 9x - 22 = 0$

(Total for Question 22 is 5 marks)

23 Factorise fully $50g^2 - 18$

2(59-3)(59+3)

(Total for Question 23 is 3 marks)