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

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

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

$$y = 8 \text{ or } -6 \text{ ①}. \text{ Hence, } (y+6)(y-8) \text{ ①}$$

$(y+6)(y-8)$

....

(2)

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

$8, -6$ ①

....

(1)

(Total for Question 1 is 3 marks)

2 Solve $x^2 - 5x - 36 = 0$

Show clear algebraic working.

$$x^2 - 5x - 36 = 0$$

$$(x - 9)(x + 4) = 0$$ ①

$$x - 9 = 0 \quad \text{or} \quad x + 4 = 0$$ ①
$$x = 9 \qquad\qquad x = -4$$

$$-4, 9$$ ①

(Total for Question 2 is 3 marks)

3 (b) Solve $x^2 - 3x - 40 = 0$

Show clear algebraic working.

By using quadratic formula:

$$x = \frac{3 \pm \sqrt{(-3)^2 - 4(1)(-40)}}{2} \quad ①$$

$$x = \frac{3 \pm \sqrt{169}}{2}$$

$$= \frac{3 \pm 13}{2} \quad ①$$

$$x = \frac{3 + 13}{2} \quad \text{or} \quad \frac{3 - 13}{2}$$

$$= 8 \quad \text{or} \quad -5 \quad ①$$

8, -5

....

(3)

(Total for Question 3 is 3 marks)

$x = 4, -6$ ①

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

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

$(x-4)(x+6)$ ②

(2)

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

$x = 4, -6$ ①

(1)

(Total for Question 4 is 3 marks)

5 Solve $x^2 - 21x + 20 = 0$

Show your working clearly.

By using quadratic formula:

$$x = \frac{21 \pm \sqrt{(-21)^2 - 4(1)(20)}}{2} \quad ①$$

$$= \frac{21 \pm \sqrt{361}}{2}$$

$$= \frac{21 \pm 19}{2} \quad ①$$

$$= \frac{21 + 19}{2} \quad \text{or} \quad \frac{21 - 19}{2}$$

$$= \frac{40}{2} \quad \text{or} \quad \frac{2}{2}$$

$x = 20$ or 1 ①

20 , 1

(Total for Question 5 is 3 marks)

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

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

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

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

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

$x+9 = 0 \qquad \text{or} \qquad x-4 = 0$
$\quad x = -9 \qquad\qquad\qquad x = 4$

$4, -9 \ \textcircled{1}$
....
(1)

(Total for Question 6 is 3 marks)

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

$x^2 + 8x - 9$

$(x - 1)(x + 9)$

②

$(x-1)(x+9)$

(2)

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

$(x-1)(x+9)$

$x = 1$ or $x = -9$

$1, -9$ ①

(1)

(Total for Question 7 is 3 marks)

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

$(x-3)(x+8)$ ②

$(x-3)(x+8)$

(2)

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

$3, -8$ ①

(1)

(Total for Question 8 is 3 marks)

9 (a) Solve the inequality $5x - 7 \leqslant 2$

$$5x \leqslant 2 + 7 \quad ①$$

$$5x \leqslant 9$$

$$x \leqslant \frac{9}{5}$$

$$x \leqslant 1.8 \quad ①$$

$$x \leqslant 1.8$$

(2)

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

$$(y - 7)(y + 5) \quad ②$$

$$(y - 7)(y + 5)$$

(2)

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

$$7, -5 \quad ①$$

(1)

(Total for Question 9 is 5 marks)

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

$3(6c^3d^2 - 7c^2)$

$3c^2(6cd^2 - 7)$

$3c^2(6cd^2 - 7)$ ②

(2)

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

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

②

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

(2)

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

$6, -3$ ①

(1)

(Total for Question 10 is 5 marks)