

Q1)

(i) $x^2 + 8x + 15 = 0$

$(x+5)(x+3) = 0$

$x+5 = 0$

$x = -5$

$x+3 = 0$

$x = -3$

(3)

(ii)

$x^2 - 22x = 0$

$(x+15)(x-15) = 0$

$x+15 = 0$

$x = -15$

$x-15 = 0$

$x = 15$

(3)

(iii)

$x^2 + 11x + 30 = 0$

$(x+5)(x+6) = 0$

$x+5 = 0$

$x = -5$

$x+6 = 0$

$x = -6$

(3)

(iv) $x^2 - 6x + 8 = 0$

$(x-4)(x-2) = 0$

$x-4 = 0$

$x = 4$

$x-2 = 0$

$x = 2$

(3)

(v) $2x^2 + 9x + 7 = 0$

$(2x+7)(x+1) = 0$

$2x+7 = 0$

$2x = -7$

$x = -\frac{7}{2}$

$x+1 = 0$

$x = -1$

(4)

Q2)

$$12x^2 + 5x = 7$$

$$12x^2 + 5x - 7 = 0$$

$$x = \frac{-5 \pm \sqrt{(5)^2 - 4(12)(-7)}}{2(12)}$$

$$x = \frac{-5 \pm \sqrt{25 + 336}}{24}$$

$$x = \frac{-5 \pm \sqrt{361}}{24}$$

$$x = \frac{-5 + 19}{24}$$

$$x = 0.58$$

$$x = \frac{-5 - 19}{24}$$

$$x = -1$$

Q3)

$$5x + 2y = 22 \quad (1) \times 3$$

$$4x + 3y = 19 \quad (2) \times 2$$

$$15x + 6y = 66 \quad (3)$$

$$8x + 6y = 38 \quad (4)$$

$$7x = 28$$

$$x = \frac{28}{7}, \quad x = 4 \rightarrow \text{Sub in (1)}$$

$$20 + 2y = 22$$

$$2y = 2$$

$$y = 1$$

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⑤

Q4)

$$(i) x^8 \times x \times x^9 = x^{18}$$

$$(ii) (2x^3)^3 = 8x^9$$

$$(iii) \frac{x^{12} \times x^8}{x} = \frac{x^{20}}{x} = x^{19}$$

$$(iv) 5x^2 \times 3x^4 = 15x^6$$

$$(v) \frac{10x^5}{2x^2} = 5x^3$$

(7)

$$Q5) 2(x^2 + y^2) + x^2(x - y) + 3xy - x^3$$

$$2x^2 + 2y^2 + \cancel{x^3} - x^2y + 3xy - \cancel{x^3}$$

$$2x^2 + 2y^2 - x^2y + 3xy$$

(4)

$$Q6) (i) 5(2x + 1) = 4(3x + 2)$$

$$10x + 5 = 12x + 8$$

$$5 - 8 = 12x - 10x$$

$$-3 = 2x$$

$$\frac{-3}{2} = x$$

(3)

$$(i) \quad 12x + 5 = 4x - 1$$

$$12x - 4x = -1 - 5$$

$$8x = -6$$

$$x = \frac{-6}{8} = \left(-\frac{3}{4} \right)$$

$$(ii) \quad \frac{(4x-1)}{3} = \frac{(5x+2)}{2}$$

$$2(4x-1) = 3(5x+2)$$

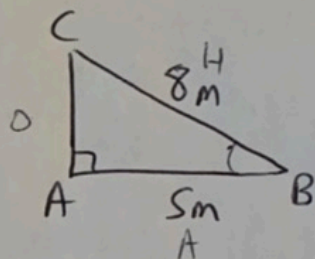
$$8x - 2 = 15x + 6$$

$$-2 - 6 = 15x - 8x$$

$$-8 = 7x$$

$$\left(\frac{-8}{7} \right) = x$$

Q7)



$$(i) \quad \cos B = \frac{S}{8}$$

$$B = \cos^{-1} \left(\frac{5}{8} \right)$$

$$B = 51.32^\circ$$

$$(ii) \quad \hat{C} = 180^\circ - 90^\circ - 51.32^\circ$$

$$\hat{C} = 38.68^\circ$$

$$(iii) \quad \tan 51.32 = \frac{AC}{5}$$

$$5 \tan 51.32 = AC$$

$$6.25m = AC$$