

①

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

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

$$x+5=0$$

$$\boxed{x = -5}$$

$$x+3=0$$

$$\boxed{x = -3}$$

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(ii)

$$x^2 - 225 = 0$$

$$x^2 - 15^2 = 0$$

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

$$x-15=0$$

$$x=15$$

$$x+15=0$$

$$x=-15$$

$$(iii) x^2 + 11x + 30 = 0$$

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

$$x+6=0$$

$$\boxed{x = -6}$$

$$x+5=0$$

$$\boxed{x = -5}$$

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

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

$$x-4=0$$

$$\boxed{x = 4}$$

$$x-2=0$$

$$\boxed{x = 2}$$

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

$$(2x+1)$$

$$(x+7)$$

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

$$2x+1=0$$

$$2x=-1$$

$$\boxed{x = -\frac{1}{2}}$$

$$x+7=0$$

$$\boxed{x = -7}$$

$$\textcircled{2} \quad 12x^2 + 5x = 7$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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

(a) (b) (c)

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

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

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

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

$$= \frac{14}{24} = \frac{7}{12} = 0,5833 = x$$

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

$$x = \frac{-29}{24}$$

$$x = -1$$

$$\begin{array}{rcl} 3. & 5x + 2y = 22 & \times 3 \\ & 4x + 3y = 19 & \times -2 \end{array}$$

$$\begin{array}{r} 15x + 6y = 66 \\ + \quad -8x - 6y = -38 \\ \hline \end{array}$$

$$7x = 28$$

$$\boxed{x = 4}$$

$$5 \cdot 4 + 2y = 22$$

$$20 + 2y = 22$$

$$2y = 22 - 20$$

$$2y = 2$$

$$\boxed{y = 1}$$

$$40) x^8 \times x \times x \times x^9$$

$$= x^{8+1+9}$$

$$= x^{18}$$

$$(ii) (2x^3)^3$$

$$(2x^3)(2x^3)(2x^3)$$

$$8x^{3+3+3} = 8x^9$$

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

$$\frac{x^{12+8}}{x} = \frac{x^{20}}{x^1} = x^{19}$$

$$= x^{19}$$

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

$$15x^{2+4}$$

$$= 15x^6$$

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

$$\frac{10x^5}{2x^2} = \frac{5x^5}{x^2} = 5x^{5-2} = \boxed{5x^3}$$

$$(5) \quad 2(x^2+y^2) + x^2(x-y) + 3xy - x^3$$

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

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

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

$$(6) \quad (i) \quad 5(2x+1) = 4(3x+2)$$

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

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

$$-3 = 2x$$

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

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

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

$$8x = -6$$

$$x = \frac{-6}{8}$$

$$\boxed{x = -\frac{3}{4}}$$

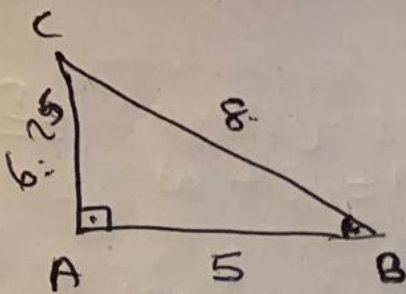
$$(iii) \quad \frac{(4x-1)}{3} = \frac{(5x+2)}{2}$$

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

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

$$-8 = 7x$$

$$\boxed{-\frac{8}{7} = x}$$



(i) $\frac{\sqrt{39}}{8}$

Angle B = ?

$\cos B = \frac{5}{8} \approx 0.625$

Angle B = 51.31°

(ii)

Angle B + C = 90°

51.31° + Angle C = 90°

Angle C = 90 - 51.30

Angle C = 38.69°

(iii)

$|AC|^2 + 5^2 = 8^2$

$|AC|^2 = 64 - 25$

$|AC|^2 = 39$

$AC = \sqrt{39}$

$AC = 6.25$