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(1)

i) $x^6 \times x^8 \times x^2 \times x = \underline{x^{17}}$

ii) $(2x^2)^4 \times 3x^3 =$

$16x^8 \times 3x^3 = 48x^{11} \quad \underline{48x^{11}}$

iii) $\frac{x^2 \times x^{10} \times x}{x^3}$

$\frac{x^{13}}{x^3} = \underline{x^{10}}$

iv) $2\sqrt{x} \times 3\sqrt{x}$

$2x \times 3 = \underline{6x}$

v) $1 = \underline{x^1}$

(2)

i) $7x - 1 = 5x + 4$

$7x = 5x + 5$

$-5x \quad -5x$

$2x = 5$

$\underline{x = 2.5}$

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iv) $(x+2)^2 = (x+3)(x+5)$

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$-4 4+x^2 = 8+x^2 -4$

$-x^2 \quad x^2 = 4x^2 \quad -x^2$

$x=4$

(3)
i) $x^2 + 9x + 14 = 0$ 7, 2

$(x+7)(x+2)$

$x^2 + 2x + 7x + 14$

$x+5=0 \quad x+3=0$

$x = -5 \quad x = -3$

ii) $x^2 - 7x + 10 = 0$ 2, 5

$(x-2)(x-5)$

$x^2 - 5x - 2x - 10$

$(x-5)(x-2)$

$x^2 - 5x - 2x - 10$

$x - 7x - 10$

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ii) $10(3x+2) = 7(-2x-1)$

$$\begin{array}{r} 30x+20 = -14x-7 \\ +14x \qquad \qquad +14x \end{array}$$

$$\begin{array}{r} 44x+20 = -7-20 \\ -20 \qquad \qquad -20 \end{array}$$

$$44x = -27$$

$$\cancel{44x = -27}$$
$$x = -\frac{27}{44}$$

$$x = 0.6136$$

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

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

$$\begin{array}{r} 3x-3 = 8x+4 \\ +8x \qquad \qquad +8x \end{array}$$

$$\begin{array}{r} 11x-3 = 4 \\ +3 \qquad \qquad +3 \end{array}$$

$$\cancel{11x} = 7$$

$$x = 0.714$$

$$x = \frac{7}{10}$$

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$$\checkmark \quad 2x^2 - 3x - 20 = 0$$

$$(2x + 5)(x - 8)$$

$$2x + 5 = 0 \quad x - 8 = 0$$

$$\underline{x = -2.5} \quad \underline{x = 8}$$

$$+1) \quad 17x^2 = -5x + 14 \quad -17x^2$$

$$\begin{array}{ccc} A & B & C \\ -5x + 14 - 17x^2 = 0 \end{array}$$

$$-14 \sqrt{17^2 - 4 \times 17 \times (-14)}$$

~~$2x - 5x - 17x^2$~~

$$x = \frac{-5 \pm \sqrt{5^2 - 4 \times 17 \times (-14)}}{2 \times 17}$$

$$x = \frac{-5 \pm \sqrt{25 + 952}}{34}$$

$$x = \frac{-5 \pm \sqrt{977}}{34}$$

$$\begin{array}{r} -5 \quad 31 \\ \hline 34 \end{array}$$

$$\begin{array}{r} -5 + 31 \\ \hline 24 \end{array}$$

$$x = \underline{-1.08}$$

$$\begin{array}{r} -5 - 31 \\ \hline 24 \end{array}$$

$$x = \underline{1.5}$$

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$$\begin{array}{ll} x-5=0 & x-2=0 \\ x=5 & x=2 \end{array}$$

iii $x^2 + 8x - 20 = 0$

$$(x+10)(x-2)$$

$$x^2 - 2x + 10x - 20$$

$$x^2 + 8x - 20$$

$$x+10=0 \quad x-2=0$$

$$\underline{x=-10} \quad \underline{x=2}$$

iv $x^2 - 49 = 0$

$$x^2 - 7^2$$

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

$$x+7=0 \quad x-7=0$$

$$\underline{x=-7} \quad \underline{x=7}$$

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$$\begin{array}{rcl} 5 & 6x + 5y & = 35 \times 4 \\ & 7x + 4y & = 31 \times 5 \end{array}$$

$$\begin{array}{rcl} & 24x + 20y & = 140 \\ & 35x + 20y & = 155 \end{array}$$

$$\begin{array}{rcl} & 81x & 14 \\ & -11x & = -15 \\ & \underline{-x} & = \underline{-0.733} \end{array}$$

$$6 \times 0.733 + 5y = 35$$

$$\begin{array}{rcl} -4.398 + 5y & = & 35 \\ 5y & = & 39.6 \\ \underline{y} & = & \underline{7.92} \end{array}$$

$$\begin{array}{l} 6 \\ i \quad 10p^3q^2 - 5p^2q + 15p^4q \\ \quad 10p^2pq - 5p^2q + 15p^2q^2q \\ \quad 2 \cdot 5p^2pq - 5p^2q + 3 \cdot 5p^2p^2q \\ \quad = \underline{5p^2q(2pq - 1 + 3p^2)} \end{array}$$

$$\begin{array}{l} ii \quad 2x^2y - 4xy^2 \\ \quad (2 \times (x^2) \times y) - 2^2xy^2 \end{array}$$

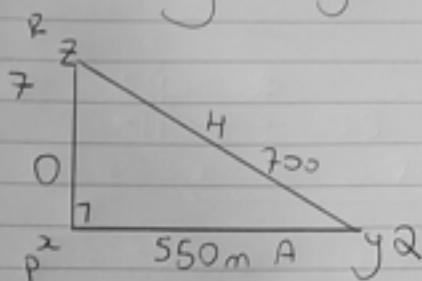
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$$(-2x^2 \times y) - 2^2 xy^2$$

$$2x^2y - 4xy^2 = 2xy(x - 2y)$$

$$\underline{2xy(x - 2y)}$$



$$\cos B = \frac{550}{700}$$

$$700^2 = 550^2 + RP$$

$$490,000 = 302,500 + RP$$

$$\sqrt{187,500} = RP$$

$$\underline{433.11 = RP}$$

$$\text{ii } \tan y = \frac{433}{550}$$

$$\tan^{-1} y = 0.78$$

$$y = \underline{37.95^\circ}$$