

01/11/21

12 pm

1)

i) $x^6 \cdot x^8 \cdot x^2 \cdot x$

$$\boxed{x^{17}}$$

ii) $(2x^2)^4 \cdot 3x^3$

$$16x^8 \cdot 3x^3$$

$$\boxed{48x^{11}}$$

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

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

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

$$\boxed{6\sqrt{x^2}}$$

v) $1 = \boxed{x^0}$

$$x^1 = x$$

$$x^0 = 1$$

2)

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

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

$$2x = 5$$

$$\frac{2x}{2} = \frac{5}{2}$$

$$\boxed{x = \frac{5}{2} \mid 2.5}$$

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

$$30x + 20 = -14x - 7$$

$$30x + 14x = -7 - 20$$

$$44x = -27$$

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

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

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

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

$$(x+2)(x+2) = (x+3)(x+5)$$
 $3x - 3 = 8x + 4$

$$x^2 + 2x + 2x + 4$$

$$x^2 + 5x + 3x + 15$$

$$x^2 + 4x + 4 = x^2 + 8x + 15$$

$$4 - 15 = 8x - 4x$$

$$-11 = 4x$$

$$\boxed{x = \frac{-11}{4}}$$

$$-3 - 4 = 8x - 3x$$

$$\frac{-7}{5} = \frac{5x}{5}$$

$$\boxed{x = \frac{-7}{5}}$$

-1.4

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3)

$$i) x^2 + 9x + 14 = 0 \quad \begin{bmatrix} 7, 2 \\ -2, 7 \end{bmatrix}$$

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

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

$$9x$$

$$x+7=0 \quad x+2=0$$

$$x = -7$$

$$x = -2$$

$$ii) x^2 - 7x + 10 = 0 \quad \begin{bmatrix} -2, -5 \\ -5, -2 \end{bmatrix}$$

$$(x-2)(x-5) = 0$$

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

$$-7x$$

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

$$x = 2$$

$$x = 5$$

$$iii) x^2 + 8x - 20 = 0 \quad \begin{bmatrix} 2, 10 \\ 10, 2 \end{bmatrix} + -$$

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

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

$$8x$$

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

$$x = 2$$

$$x = -10$$

$$iv) x^2 - 49 = 0$$

$$x^2 - 49 = 0$$

$$(x+7)(x-7) = 0$$

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

$$x = -7$$

$$x = 7$$

$$v) 2x^2 - 3x - 20 = 0 \quad \begin{bmatrix} 1, 20 \\ 5, -4 \\ 10, -2 \end{bmatrix}$$

$$(2x+5)(x-4) = 0$$

$$2x^2 - 8x + 5x - 20 = 0$$

$$2x+5=0 \quad x-4=0$$

$$\frac{2x}{2} = \frac{-5}{2} \quad x = 4$$

$$x = \frac{-5}{2}$$

$$x = 4$$

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$$4) \quad 17x^2 = -5x + 14$$

$$17x^2 + 5x - 14 = 0$$

$\begin{matrix} & & \swarrow & \nwarrow \\ a & & b & & c \end{matrix}$

$$5) \quad 6x + 5y = 35 \text{ (1) } \cdot 4$$

$$7x - 4y = 31 \text{ (2) } \cdot 5$$

$$24x + 20y = 140 \text{ (3) } +$$

$$35x - 20y = 155 \text{ (4) }$$

$$\begin{array}{r} 59x = 295 \\ \hline 59 \end{array}$$

$$\boxed{x = 5}$$

$$\boxed{y = 1}$$

$$6(5) + 5y = 35$$

$$30 + 5y = 35$$

$$5y = 5$$

$$y = 1$$

$$6x + 5(1) = 35$$

$$6x + 5 = 35$$

$$\frac{6x}{6} = \frac{30}{6}$$

$$x = 5$$

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

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

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

$$\frac{-5 \pm \sqrt{31.25}}{34}$$

$$\frac{-5 + 31.25}{34}$$

$$\frac{-5 - 31.25}{34}$$

$$\frac{26.25}{34}$$

$$\frac{-36.25}{34}$$

$$\boxed{x = 0.772}$$

$$\boxed{x = -1.066}$$

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$$6) 10x^3 - 5x^2 + 15x^4$$

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$$6) 10x^3 - 5x^2 + 15x^4$$