

$$1) i - x^4 \times x^6 \times x = x^{11}$$

$$ii - 2x^2 \times 3x^3 \times 2x = 12x^6$$

$$iii - \frac{x^4 \times x^3 \times x^2}{x^9} = x$$

$$iv - (3x^2)^3 = 27x^6$$

$$v - \sqrt{x} \times \sqrt{x} = (\sqrt{x})^2 = x^{\frac{2}{2}} = x$$

$$2) i - 15x - 2 = 12x + 9$$

$$\Rightarrow 15x - 12x = 9 + 2$$

$$\Rightarrow 3x = 11$$

$$\Rightarrow x = \frac{11}{3}$$

$$\Rightarrow x = 3,67$$

$$ii - 3(7x - 1) = 6(x + 3)$$

$$\Rightarrow 21x - 3 = 6x + 9$$

$$\Rightarrow 21x - 6x = 9 + 3$$

$$\Rightarrow 15x = 12$$

$$\Rightarrow x = \frac{12}{15}$$

$$\Rightarrow x = 0,8$$

$$iii - \frac{5x + 3}{4(9)} = \frac{2x - 1}{9(4)}$$

$$\Rightarrow 45x + 27 = 8x - 4$$

$$\Rightarrow 45x - 8x = -4 - 27$$

$$\Rightarrow 37x = -31$$

$$\Rightarrow x = \frac{-31}{37}$$

$$\Rightarrow x = -0,84$$

$$3) i - x^2 + 10x + 21 = 0$$

$$\Rightarrow (x+7)(x+3) = 0$$

$$\Rightarrow x+7=0 \wedge x+3=0$$

$$\Rightarrow x = -7 \wedge x = -3$$

$$ii - x^2 - 3x + 2 = 0$$

$$\Rightarrow (x-2)(x-1) = 0$$

$$\Rightarrow x-2=0 \wedge x-1=0$$

$$\Rightarrow x = 2 \wedge x = 1$$

$$iii - x^2 + 12x + 20 = 0$$

$$\Rightarrow (x+10)(x+2) = 0$$

$$\Rightarrow x+10=0 \wedge x+2=0$$

$$\Rightarrow x = -10 \wedge x = -2$$

$$iv - x^2 - 64 = 0$$

$$\Rightarrow (x+8)(x-8) = 0$$

$$\Rightarrow x+8=0 \wedge x-8=0$$

$$\Rightarrow x = -8 \wedge x = 8$$

$$v - 2x^2 + 9x + 10 = 0$$

$$\Rightarrow (2x+5)(x+2) = 0$$

$$\Rightarrow 2x+5=0 \wedge x+2=0$$

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

$$\Rightarrow x = -2,5 \wedge x = -2$$

$$4) 14x^2 + 3x = 11$$

$$\Rightarrow 14x^2 + 3x - 11 = 0$$

$$\Rightarrow x = \frac{-3 \pm \sqrt{3^2 - 4 \times 14 \times (-11)}}{2 \times 14}$$

$$\Rightarrow x = \frac{-3 \pm \sqrt{625}}{28}$$

$$\Rightarrow x = \frac{-3 - \sqrt{625}}{28} \wedge x = \frac{-3 + \sqrt{625}}{28}$$

$$\Rightarrow x = -1 \wedge x = 0,79$$

$$5) \begin{cases} 5x + 3y = 39 & (1) \\ 8x - 2y = 42 & (2) \end{cases}$$

$$10x + 6y = 78 \quad (3)$$

$$24x - 6y = 126 \quad (4)$$

$$(3+4)$$

$$34x = 204$$

$$x = \frac{204}{34}$$

$$x = 6$$

Sub. x in eq. (1):

$$6 \times 5 + 3y = 39$$

$$30 + 3y = 39$$

$$3y = 9$$

$$y = \frac{9}{3}$$

$$y = 3$$

$$6) \begin{aligned} & 5(2x^2 - y^2) - x^2(x^2 - y) - x^2y - x^4 \\ & \Rightarrow 10x^2 - 5y^2 - x^4 + x^2y - x^2y - x^4 \\ & \Rightarrow 10x^2 - 5y^2 - 2x^4 \end{aligned}$$

$$7) i - \underline{\text{Angle } Y} \quad \tan y = \frac{4}{7}$$

$$y = \tan^{-1}\left(\frac{4}{7}\right)$$

$$y = 29.74^\circ$$

$$ii - \underline{\text{Angle } Z} \quad \tan z = \frac{7}{4}$$

$$z = \tan^{-1}\left(\frac{7}{4}\right)$$

$$z = 60.26^\circ$$

$$iii - \underline{YZ}$$

$$YZ = \pm \sqrt{7^2 + 4^2}$$

$$\Rightarrow YZ = \pm \sqrt{65}$$

$$\Rightarrow \underline{YZ = 8.06 \text{ m}}$$

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$$8) i - \sqrt[3]{x} = (\sqrt[3]{x})' = x^{\frac{1}{3}}$$

$$ii - 1 = x^0$$

