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$$\text{ii) } x^4 \times x^6 \times x = x^{4+6+1} = x^{11}$$

$$\text{iii) } 2x^2 \times 3x^3 \times 2x = 2^2 \times 3 \times 2 \times x^{2+3+1} = 12x^6$$

$$\text{iii) } \frac{x^4 \times x^3 \times 2x}{x^9} = \frac{x^{4+3+1}}{x^9} = \frac{x^8}{x^9} = \frac{1}{x}$$

$$\text{iv) } (3x^2)^3 = 3^3 \times (x^2)^3 = 27x^6$$

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

2. Linear equations

$$\text{i) } 15x - 2 = 12x + 9$$

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

$$3x = 11$$

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

$$\text{ii) } 3(7x - 1) = 6(x + 3)$$

$$21x - 3 = 6x + 18$$

$$21x - 6x = 18 + 3$$

$$15x = 21 \Rightarrow x = \frac{21}{15} = \frac{7}{5}$$

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

$$9(5x+3) = 4(2x-1)$$

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

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

$$37x = -31 \Rightarrow x = \frac{-31}{37} = -0.837$$

$$x = -0.83$$

(3)

$$\text{i) } x^2 + 10x + 24 = 0$$

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

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

$$\text{ii) } x^2 - 3x + 2 = 0$$

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

$$x-1=0 \quad x-2=0$$

$$\Rightarrow x = 1 \quad x = 2$$

$$\text{iii) } x^2 + 12x + 20 = 0$$

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

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

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

$$\text{iv) } x^2 - 64 = 0 \quad 8 \times 8 = 64$$

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

$$\text{v) } 2x^2 + 9x + 10 = 0$$

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

$$2(x+\frac{5}{2}) \quad 5(x+2)$$

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

$$\frac{1}{2}x = -\frac{5}{2} \Rightarrow x = -\frac{5}{2} \Rightarrow x = -2.5$$