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(ب) ریشہ کا معادلہ: $a = \frac{c}{b}$ اور $\frac{-p}{-1} = \frac{a}{1}$

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$$\leftarrow 0 \leq \Delta$$

$$(n-1)^2 = 4 \quad n-1 = \pm \sqrt{4}$$

$$x = \frac{1}{r} \pm \sqrt{1/b} \rightarrow \boxed{x_1 = \frac{1}{r} + \sqrt{1/b}, x_2 = \frac{1}{r} - \sqrt{1/b}}$$

$$= 1 \pm \sqrt{r}$$

$$\frac{-1 \pm \sqrt{14}}{2}$$

$$\text{الف) } x^2 - 11x + 12 = 0 \rightarrow (x-1)(x-12) = 0 \rightarrow \boxed{x_1 = 1, x_2 = 12}$$

$$\text{ب) } x^2 + 6x - 7 = 0 \rightarrow (x+7)(x-1) = 0 \rightarrow \boxed{x_1 = -7, x_2 = 1}$$

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$$\text{الف) } \Delta x^2 - 12x + V = 0 \rightarrow x^2 - 12x + C = 0 \rightarrow (x-V)(x-12) = 0$$

$$x=V \quad x=12$$

$$\rightarrow \boxed{x_1 = \frac{V}{\Delta}, x_2 = \frac{12}{\Delta} = 1}$$

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$$\text{ب) } Cx^2 - 10x + V = 0 \rightarrow x^2 - 10x + 11 = 0 \rightarrow (x-V)(x-11) = 0$$

$$x=V \quad x=11$$

$$\rightarrow \boxed{x_1 = \frac{V}{C}, x_2 = \frac{11}{C}}$$

$$\text{الف) } 2x^2 - 5x + C = 0 \xrightarrow{a+b+c=0} \boxed{x_1 = 1, x_2 = \frac{C}{2}}$$

$$\text{if } a+b+c=0 \rightarrow x_1=1, x_2=\frac{-c}{a}$$

$$\text{if } a+c=b \rightarrow x_1=-1, x_2=\frac{-c}{a}$$

$$\text{ب) } rx^2 + 6x + C = 0 \xrightarrow{a+c=b} \boxed{x_1 = -1, x_2 = \frac{-C}{r}}$$

$$\text{ج) } 2x^2 - 5x + 1 = 0 \xrightarrow{\Delta} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{5 \pm \sqrt{25 - 8}}{4} = \frac{5 \pm \sqrt{17}}{4}$$

$$\text{د) } x^2 + Vx + 9 = 0 \xrightarrow{\Delta} x = \frac{-V \pm \sqrt{V^2 - 36}}{2} \rightarrow \Delta < 0 \rightarrow \text{لا يوجد حلا حقيقي}$$

$$x^2 - 2x - 2 = 0 \quad S = \frac{-b}{a} \quad P = \frac{c}{a}$$

$$\text{الف) } S^2 - 2P = \left(\frac{-b}{a}\right)^2 - 2\left(\frac{c}{a}\right) = \left(\frac{2}{1}\right)^2 - 2\left(\frac{-2}{1}\right) = 4 + 4 = 8$$

$$\text{ب) } S^2 - 2P = \left(\frac{2}{1}\right)^2 - 2 \times \left(\frac{2}{1}\right) \times (-2) = 4 + 8 = 12$$

$$\text{الف) } \binom{7}{5} + \binom{9}{2} = \frac{7 \times 6 \times 5}{5!} + \frac{9 \times 8}{2!} = 11 + 36 = 47$$

$$\text{ب) } \binom{9}{5} - \binom{1}{2} = \frac{9!}{5!4!} - \frac{1!}{2!} = \frac{9 \times 8 \times 7 \times 6}{4 \times 3 \times 2 \times 1} - \frac{1}{2} = 126 - \frac{1}{2} = 125.5$$

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$

$$\binom{n}{r} = \frac{n(n-1)}{r!}$$

$$\binom{n}{c} = \frac{n(n-1)(n-2)}{c!}$$

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