

$$y = (a-1)n^2 + n + 3$$

①

$$\frac{-b}{2a} = 1 \Rightarrow \frac{-1}{2(a-1)} = 1 \Rightarrow (a-1) = -\frac{1}{2} \Rightarrow a = \frac{1}{2}$$

②

$$y = (\frac{1}{2}-1)n^2 + n + 3 = -\frac{1}{2}n^2 + n + 3 \xrightarrow{\text{مشتق}} -n + 1 = 0 \Rightarrow n = 1$$

$$f(n) = mn^2 - \omega n + m \quad \left\{ \begin{array}{l} \Delta < 0 \Rightarrow \text{max} \text{ می شود} \\ \Delta > 0 \Rightarrow 4\omega - 4m^2 > 0 \Rightarrow \omega > m^2 \end{array} \right. \left\{ \begin{array}{l} \frac{\omega}{4} > m \\ -\frac{\omega}{4} < m \end{array} \right\} \left\{ \begin{array}{l} 0 < \frac{\omega}{4} < m \\ m < (-\frac{\omega}{4}, 0) \end{array} \right.$$

$$n^2 - 5n + p = 0$$

③

$$S = \frac{r - \sqrt{\omega}}{r} + \frac{r + \sqrt{\omega}}{r} = \frac{2r}{r} = 2 \Rightarrow n^2 - 2n + \frac{r}{9} = 0 \Rightarrow 9n^2 - 18n + r = 0$$

④

$$9n^2 - 18n + m + 2 = 0 \Rightarrow 9n^2 + 18n + 2 = 0 \Rightarrow 9n^2 + 18n + \alpha^2 - \beta^2 = 1 \Rightarrow (9n^2 + 18n + 9) - 7 = 1 \Rightarrow (3n+3)^2 = 8 \Rightarrow 3n+3 = \pm 2\sqrt{2} \Rightarrow n = \frac{\pm 2\sqrt{2} - 3}{3}$$

⑤

$$an^2 + bn + c = 0 \Rightarrow an^2 + bn + \omega = 0 \Rightarrow an^2 - \omega n + \omega = 0 \Rightarrow \frac{n^2}{a} - \frac{\omega n}{a} + \frac{\omega}{a} = 0 \Rightarrow \frac{-b}{2a} = 1 \Rightarrow -b = 2a$$

⑥

$$f(a) = a^2 - 1 \Rightarrow a^2 - 1 = 0 \Rightarrow (a-1)(a+1) = 0 \Rightarrow a = 1 \text{ or } a = -1$$

$$\alpha n^2 - Vn + 9\beta = 0 \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{-V}{\frac{-V}{-1}} = \frac{V}{-1} = -V$$

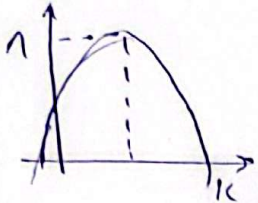
⑦

$$n^2 + mn - 2m = 0 \Rightarrow \alpha^2 - m\beta = 1 \Rightarrow \alpha^2 + \beta^2 - 2m = 1 \Rightarrow (S^2 - 2P) - 2m = 1 \Rightarrow m^2 + \beta^2 - 1 = 0 \Rightarrow (m-1)(m+1) = 0 \Rightarrow m = 1 \text{ or } m = -1$$

⑧

$$\max_{m \geq 0} z > m < 0$$

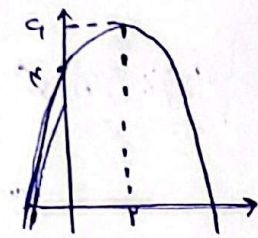
$$f(m) = mm^2 + km + \frac{m}{r} + V \quad \frac{C}{a} < 0 \Rightarrow \frac{m+k}{m} = \frac{m+k}{m} < 0 \Rightarrow m \neq (-k/20) \quad (1)$$



$$\text{or } f(m) = \frac{-\Delta}{4a} = A \Rightarrow \frac{km^2 + km - 1}{4} = A \Rightarrow km^2 + km - 1 = 4A \Rightarrow km^2 + km - 1 = 4A \Rightarrow km^2 + km - 1 = 4A$$

$$km^2 - km - 1 = 0 \Rightarrow m^2 - m - \frac{1}{k} = 0 \Rightarrow (m - \frac{1}{2})^2 = \frac{1}{4} + \frac{1}{k} \Rightarrow m = \frac{1}{2} \pm \sqrt{\frac{1}{4} + \frac{1}{k}}$$

$$\text{or } f(m) = \frac{-\Delta}{4a} = A \Rightarrow \frac{km^2 + km - 1}{4} = A \Rightarrow km^2 + km - 1 = 4A \Rightarrow km^2 + km - 1 = 4A$$



$$an^2 + bn + c = 0 \Rightarrow an^2 + bn + c = 0$$

$$\text{or } f(n) = \frac{-b}{2a} = \frac{-b}{2a} \Rightarrow an^2 - \frac{b}{2a}n + \frac{c}{2a} = 0 \Rightarrow \frac{n^2}{2a} - \frac{b}{2a}n + \frac{c}{2a} = 0$$

$$- \frac{b}{2a} = \frac{c}{2a} \Rightarrow \frac{b}{2a} = \frac{c}{2a} \Rightarrow \frac{b}{2a} = \frac{c}{2a} \Rightarrow \frac{b}{2a} = \frac{c}{2a}$$

$$\frac{1}{a} + \frac{1}{b} = \frac{a+b}{ab} = \frac{5}{p} = \frac{r}{-a} = \frac{-1}{r}$$

$$n^2 - (ka + k)n + (ka^2 + 4a + 4) = 0$$

$$n^2 - k(a+1)n + (ka^2 + 4a + 4) = 0 \Rightarrow n^2 - k(a+1)n + (ka^2 + 4a + 4) = 0$$

$$ka^2 - 2a - 1 = 0 \Rightarrow \frac{1}{k} = \frac{2a+1}{a^2} \Rightarrow \frac{1}{k} = \frac{2a+1}{a^2}$$

$$\frac{1}{k} = \frac{2a+1}{a^2} \Rightarrow \frac{1}{k} = \frac{2a+1}{a^2} \Rightarrow \frac{1}{k} = \frac{2a+1}{a^2}$$

$$\frac{1}{k} = \frac{2a+1}{a^2} \Rightarrow \frac{1}{k} = \frac{2a+1}{a^2} \Rightarrow \frac{1}{k} = \frac{2a+1}{a^2}$$