

الف) $y = 2m^2 - 4m + 1$ $m = \frac{-b}{2a} = \frac{2}{4} = 1$ $y = \frac{-\Delta}{4a} = \frac{-1}{4} = -\frac{1}{4}$ (1)
 $\Delta = 16 - 4 \times 2 \times 1 = 8$
 Min = $\begin{vmatrix} 1 \\ -1 \end{vmatrix}$ ✓ $a > 0 \rightarrow$ Min

ب) $y = -2m^2 + 3m - 5$ $m = \frac{-b}{2a} \rightarrow \frac{-3}{2(-2)} = \frac{3}{4}$ $y = \frac{-\Delta}{4a} = \frac{31}{-8} = -\frac{31}{8}$
 $\Delta = 9 - 4(-2)(-5) = -31$ Max = $\begin{vmatrix} \frac{3}{4} \\ -\frac{31}{8} \end{vmatrix}$ ✓ $a < 0 \rightarrow$ Max

ج) $y = m^2 - 6m + 1$ $m = \frac{-b}{2a} = \frac{-(-6)}{2} = 3$ $y = \frac{-\Delta}{4a} = \frac{-32}{4} = -8$ (2)
 $\Delta = 36 - 4 = 32$ $a > 0 \rightarrow$ Min

د) $y = -m^2 + 4m + 1$ $m = \frac{-b}{2a} \rightarrow \frac{-4}{2(-1)} = 2$ $y = \frac{-\Delta}{4a} = \frac{-20}{-4} = 5$ (3)
 $\Delta = 16 - 4(1)(1) = 20$ $a < 0 \rightarrow$ Max = $\begin{vmatrix} 2 \\ 5 \end{vmatrix}$

$f\alpha^2 + k\alpha^2 - 9\alpha - 2 = 0$ $\alpha + \beta = 1$, $\alpha\beta = -2$ $k = ?$ (4)
 $\alpha^2 + \beta^2 = 5 - 2sp$ $\alpha^2 + \beta^2 = 5 - 2p$
 $11^2 - 2(-2)(1) = v$ $11^2 - 2(2) = \omega$
 $2\Lambda + \omega k - 13 = 0$ $\omega k = -10$ $k = -3$ ✓

$x^2 - 3mx + m = 0$ $\alpha\beta = m$
 $\alpha + \beta = 3m$
 $2\alpha^2 - m\alpha - m = 0$
 $2\alpha^2 - \alpha - 1 = 0$ $\frac{c}{a} = \frac{-1}{2}$ ✓

$(\sqrt{\alpha} - \sqrt{\beta} = 1)^2$ (5)
 $\alpha + \beta - 2\sqrt{\alpha\beta} = 1$
 $3m - 2\sqrt{m} - 1 = 0$ $\sqrt{m} = t$
 $3t^2 - 2t - 1 = 0$ $\frac{2 \pm \sqrt{16}}{6} \rightarrow 1 \checkmark$
 $\rightarrow \frac{-1}{3} \times$
 $\sqrt{m} = 1 \rightarrow m = 1$

B = 3, k = -3

من ارتفاع $\frac{r}{f}$ \times قاعده $\frac{1}{r} \times m$ \times $\frac{m-r}{r} = \frac{r}{f}$

$\frac{\sqrt{\Delta}}{|a|} \rightarrow \sqrt{(m+r)^2 - 4m} \rightarrow \sqrt{m^2 - fm + r^2} = (m-r)r$ (a)

① $\frac{1}{r} \times m \times \frac{m-r}{r} = \frac{r}{f} \rightarrow \frac{m^2 - rm}{r^2} = \frac{r}{f}$

$\frac{|m-r|}{r} \rightarrow \begin{cases} \frac{m-r}{r} \text{ ①} \\ \frac{r-m}{r} \text{ ②} \end{cases}$

$m^2 - rm = r^2 \quad m^2 - rm - r^2 = 0 \rightarrow (m-r)(m+r) = 0 \rightarrow \begin{cases} +r \\ -1 \end{cases}$

② $\frac{1}{r} \times m \times \frac{r-m}{r} = \frac{r}{f} \rightarrow \frac{rm - m^2}{r^2} = \frac{r}{f} \rightarrow rm - m^2 = r^2 \rightarrow rm - m^2 - r^2 = 0 \quad \Delta < 0 \quad \times$

$y = ax^r - mx + 1 \rightarrow \begin{cases} \frac{-b}{ra} = \frac{r}{f} \\ \frac{-b}{ra} = \frac{-1}{r} \end{cases}$

$y = ax^r + mx + a \quad \frac{-\Delta}{4a} = \frac{v}{\wedge} \quad \frac{ra^2 - a}{4a} = \frac{v}{\wedge} \quad \frac{ra^2 - a - v}{4a} = 0$ (f)

$ra^2 - a - v = 0 \rightarrow f(\wedge a^2 - va - \wedge) = 0 \quad \frac{v \pm \sqrt{v^2 + 4\wedge a}}{2\wedge} \rightarrow \begin{cases} \frac{14}{14} = 1 \checkmark \\ \frac{-14}{14} \times \end{cases}$

$m^2 - (a+1)m + a = 0 \quad \frac{\sqrt{\Delta}}{|a|} = r \rightarrow \frac{\sqrt{(a+1)^2 - 4a}}{1} \quad |a-1| = r \rightarrow \begin{cases} a=r \\ a=-1 \times \end{cases}$

$m^2 - 10m + b = 0 \quad \frac{\sqrt{\Delta}}{|a|} = r \quad \sqrt{100 - 40b} = r \quad m^2 - (3a+1)m + b = 0 \xrightarrow{a=r} 100 - 40b = r^2 \rightarrow b = \frac{100 - r^2}{40}$

$\frac{-a}{14} + \frac{4a}{14} + \frac{14}{14} = \frac{3a + 14}{14} = \frac{-(b+1)}{\wedge} \rightarrow 3a + 2b = -f \wedge$ (A)
 $\frac{b}{r} - \frac{b}{r} - 1 = -1 \quad \frac{\wedge + a}{f} \rightarrow a = -12 \quad \begin{cases} -14 + 2b = -f \wedge \quad b = -9 \\ b - a = -9 + 12 = 3 \end{cases}$

$\alpha\beta = \frac{\beta}{2a} \quad \alpha + \beta = \frac{-f}{2a} \quad \begin{cases} \alpha = \frac{1}{a} \rightarrow \beta = \frac{-f}{2} - \frac{1}{a} = -1 \quad \beta < \alpha \quad \times \quad \text{وَجَدَ} \\ \alpha = \frac{-1}{a} \rightarrow \beta = \frac{f}{2} + \frac{1}{a} = 1 \quad \beta > \alpha \quad \checkmark \end{cases}$ (f)

$2a\alpha\beta = \beta \quad \alpha = \frac{1}{2a} \quad \alpha = \pm \frac{1}{a} \quad \alpha = \frac{-1}{a}, \beta = 1$
 $-a\left(\frac{r}{a}\right)^2 + f\left(\frac{r}{a}\right) + 1 = \frac{a}{a} \quad \frac{-b}{ra} = \frac{r}{a} \xrightarrow{r} y = -\omega m^r + fm + 1$

$y > 0, m > 0 \Rightarrow$ نصف اول \checkmark



$$z^r - \underbrace{(a^r + b^r - 1r)}_S u + \underbrace{a + b}_S - 1 = 0 \quad \text{Passa} \quad (1)$$

$P = S - 1$

$$S = S^r - 1r \xrightarrow{P=S-1} S^r - 1rS - 1 = 0 \quad \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{r \pm \sqrt{r^2 - 4a}}{2a} \rightarrow \omega \vee -X$$



$$x^2 - (a+1)x + a = 0 \xrightarrow{a+b+c=0} \begin{cases} x_1 = 1 \\ x_2 = a \end{cases} \xrightarrow{\text{عدد فرد بعد 2}} a = 3$$

V

$$x^2 - 1 \cdot x + b \xrightarrow{\substack{\text{درجه زوج} \\ \text{متوالی}}} 2n + (2n+2) = 1 \rightarrow n = 2 \rightarrow \text{ریشه ها 4 و 4 هستند}$$

$$(4 \times 4) - (3 \times 1) = 16 - 3 = \boxed{13}$$