

الف) $-3m^2 + 5m - 1 = 0$ $\Delta = b^2 - 4ac = 25 - 12 = 13 \rightarrow$ $\Delta > 0 \Rightarrow$ دو ریشه متمایز

ب) $2m^2 - m + 2 = 0$ $\Delta = 1 - 16 = -15 \rightarrow$ $\Delta < 0 \Rightarrow$ ریشه ها مجازی

ج) $2m^2 - 4m + 2 = 0$ $\Delta = 16 - 16 = 0 \rightarrow$ $\Delta = 0 \Rightarrow$ یک ریشه

ت) $2m^2 - m + 1 = 0$ $\Delta = 1 - 8 = -7 \rightarrow$ $\Delta < 0 \Rightarrow$ ریشه ها مجازی

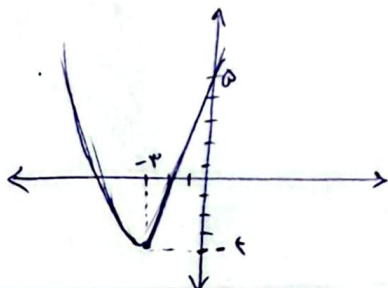
$2m^2 - 3m + 5 = 0$

الف) $\Delta > 0$ $\Delta = b^2 - 4ac = 9 - 40 = -31$ $\Delta < 0$ $\Delta = 0$ $\Delta < 0$ $\Delta > 0$

ب) $\Delta < 0$ $\Delta = 0$ $\Delta < 0$ $\Delta > 0$

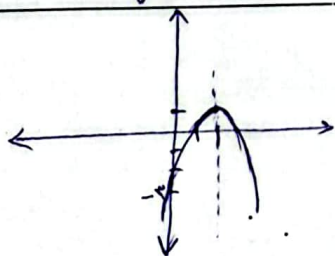
ج) $\Delta < 0$ $\Delta = 0$ $\Delta < 0$ $\Delta > 0$

د) $\Delta < 0$ $\Delta = 0$ $\Delta < 0$ $\Delta > 0$



Ext min $m = -\frac{b}{2a} = -\frac{4}{2} = -2$

$y = 4 - 16 + 20 = -4$



$y = -m^2 + 4m - 3$

الف) Ext max $m = -\frac{b}{2a} = 2$

$y = -4 + 8 - 3 = 1$

ب) $y = -m^2 + 4m - 3$ $(m+1)(m+3) = 0$ $m = -1$ $m = -3$

الف) $5^2 - 2P$

$= 25 - 2P$

$P = \frac{c}{a} = \frac{2}{1} = 2$

$S = -\frac{b}{a} = 5$

ب) $5^3 - 3SP$

$125 - 3 \times 5 \times 2 = 65$

الف) $m^2 - 4m + 8 = 0$

$m^2 - 4m + 4 = 1$

$(m-2)^2 = 1 \Rightarrow m-2 = \pm 1 \quad m = \begin{cases} 3 \\ 1 \end{cases}$

ب) $m^2 + 8m + 7 = 0$

$m^2 + 8m + 14 = 9 \Rightarrow (m+4)^2 = 9 \Rightarrow m+4 = \pm 3 \quad m = \begin{cases} -7 \\ -1 \end{cases}$

الف) $m^2 - 5m + 4 = 0$

$(m-1)(m-4) = 0$

$\boxed{m=3}$
 $\boxed{m=1}$

$\boxed{m=7}$
 $\boxed{m=2}$

ب) $m^2 - 5m - 14 = 0 \quad (m-7)(m+2) = 0$

الف) $m^2 - 3m - 5 = 0$

$m = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{3 \pm \sqrt{9+20}}{2} = \frac{3 \pm \sqrt{29}}{2}$

ب) $2m^2 - 5m + \frac{1}{2} = 0$

$m = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{5 \pm \sqrt{25-4}}{4} = \frac{5 \pm \sqrt{21}}{4} = \frac{5 \pm 2\sqrt{3}}{4} = \frac{(2 \pm \sqrt{3})}{2}$

الف) $m^2 - 3m + 2 = 0$

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

$\boxed{m=1}$
 $\boxed{m=2}$

ب) $2m^2 + m - 3 = 0$

$m^2 + m - 1.5 = 0 \quad (m-3)(m+5) = 0 \quad m = \frac{3}{2} \text{ و } m = -1$

الف) $5m^2 - 12m + 7 = 0$

$m^2 - 12m + 35 = 0$

$(m-7)(m-5) = 0$

$\boxed{m = \frac{7}{5}} \quad \boxed{m = \frac{5}{5} = 1}$

ب) $3m^2 - 10m + 7 = 0$

$m^2 - 10m + 21 = 0$

$(m-3)(m-7) = 0 \quad m = 1 \quad m = \frac{7}{3}$