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$x^2+6x+m=0$ مجموع ریشه‌ها: $-\frac{b}{a}=\alpha+\beta=-6$ (۱۵)

$x^2+2x-3m=0$ مجموع ریشه‌ها: $-\frac{b}{a}=\alpha+\theta=-2$

$\theta-\beta=\boxed{4}$

۱۹٫۵

ایدیا وصای به نام خدا

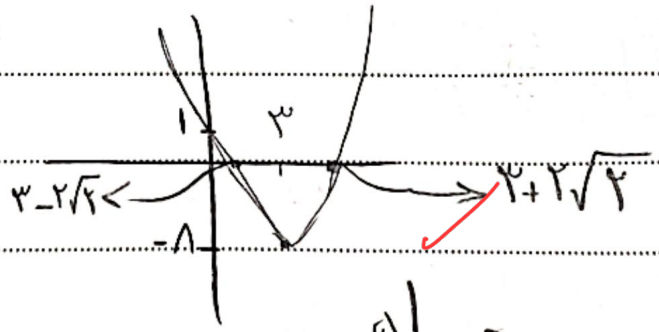
الف) $y=2x^2-4x+1$ → min (۱)

$ext\begin{cases}-\frac{b}{a}=1\\ 2\times1-4\times1+1=-1\end{cases}$ → $ext|_{-1}$ → min (۲)

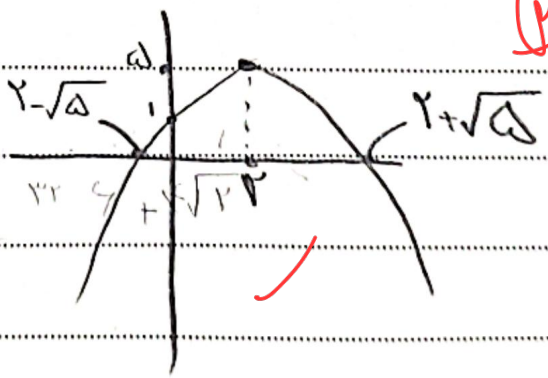
ب) $-2x^2+3x-5$ → max (۲)

$ext\begin{cases}\frac{-b}{2a}=\frac{3}{4}\\ \frac{-\Delta}{4a}=\frac{-31}{8}\end{cases}$

$y=x^2-2x+1$ (۲)



$y=-x^2+4x+1$ (۲)



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$\alpha = \frac{-2}{\beta}$ $\quad \frac{\alpha - 2}{\beta} + \beta = 1 \rightarrow -2 + \beta^2 = \beta \rightarrow \beta^2 - \beta - 2 = 0$

$\rightarrow (\beta - 2)(\beta + 1) = 0 \quad \alpha = +2, -1 \quad \beta = -1, 2$

$\alpha = -1 \rightarrow 4 \times 3^2 + K - 18 - 2 = 0 \quad K = -3$ (۲)

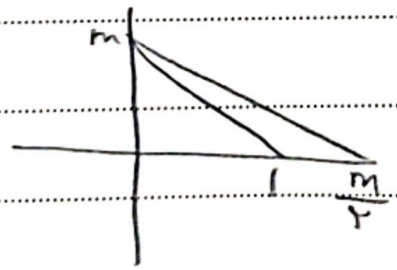
$\beta = -1 \rightarrow -4 - K + 9 - 2 = 0 \rightarrow K = -3$ ✓

$\alpha + \beta = 3m \quad \alpha\beta = m \quad \frac{m}{2} = \frac{-1}{2}$ (۴)

$\sqrt{\alpha} - \sqrt{\beta} = 1 \rightarrow \alpha + \beta - 2\sqrt{\alpha\beta} = 1$ (۲)

$3m - 2m = 1 \rightarrow m = 1$

$\alpha + b + c = 0 \rightarrow \alpha = 1, \beta = \frac{m}{2}$ (۵)



$\frac{m(\frac{m}{2} - 1)}{2} = \frac{3}{2} \rightarrow \frac{m^2}{2} - m - \frac{3}{2} = 0$ (۳)

$\rightarrow m^2 - 2m - 3 = 0 \rightarrow m = 3, -1$

$\frac{m}{2} = \frac{3}{2}$ ، $-\frac{1}{2}$ ✓

$\min \rightarrow a > 0 \quad \frac{-\Delta}{4a} = \frac{7}{8} \rightarrow \frac{4a^2 - 9}{4a} = \frac{7}{8} \rightarrow 32a^2 - 14a - 18 = 0$ (۶)

$8a^2 - 7a - 4 = 0$

$a = \frac{7 + \sqrt{81}}{16} = 1$ ✓

$a = \frac{7 - \sqrt{81}}{16} = -\frac{1}{8}$ ✗ $a > 0$

(۲) ✓

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$\frac{\sqrt{\Delta}}{|a|} = 2 \rightarrow \sqrt{a^2+2a+1-4a} = 2 \rightarrow \sqrt{a^2-2a+1} = 2$ (۷)

$\rightarrow \sqrt{(a-1)^2} = 2 \rightarrow |a-1| = 2 \begin{cases} a = 3 \checkmark \\ a = -1 \times \rightarrow a = 1 \end{cases}$

$\beta = -14$

$x^2 - 10x + b = 0 \rightarrow \frac{\sqrt{\Delta}}{|a|} = 2 \rightarrow \sqrt{100-4b} = 2$ (۲)

$100-4b = 4 \rightarrow b = 24$

$\rightarrow x^2 - 4x + 3 = 0 \rightarrow \frac{c}{a} = 3$

$\rightarrow x^2 - 10x + 24 = 0 \rightarrow \frac{c}{a} = 24$ $\Big\}$ $24-13=11$ ✓

$\rightarrow 2b(\frac{1}{4}) - b(\frac{1}{2}) - 1 = \frac{a}{4} + 2 \rightarrow \frac{a}{4} = -3$

$y = -ax^2 + ax + 2 \rightarrow ext: (\frac{+1}{2}, \frac{a}{8} + 2)$ $a = -14$ (۸) (۱/۲۵)

$y = 2bx^2 - bx - 1 \rightarrow ext: (\frac{1}{4}, -\frac{b}{8} - 1)$ $b - a = -4 - (-14) = 4$

$2b(\frac{1}{4})^2 - \frac{1}{2}b - 1 = \frac{a}{4} + 2 \rightarrow \frac{a}{4} + 2 - 1$

$\rightarrow 12(\frac{1}{4})^2 - 3 + 5 = -\frac{b}{3} - 1 \rightarrow \frac{12}{16} - 1 = -\frac{b}{8} - 1 \rightarrow b = -6$

$y = 25ax^2 + 4x + \beta \quad \alpha\beta = \frac{c}{a} = \frac{\beta}{25a}$ (۹)

$\alpha = \frac{1}{25a} \rightarrow a^2 = \frac{1}{25} \rightarrow a = \pm\frac{1}{5} \begin{cases} \alpha = \frac{1}{5} \times \\ \alpha = -\frac{1}{5} \checkmark \end{cases}$

$\alpha = \frac{1}{5}$

$y = 5x^2 + 4x + \beta \quad S = -\frac{4}{5} = a + \beta = \frac{1}{5} + \beta = -\frac{4}{5}$

$\alpha = -\frac{1}{5}$ $\beta = -1 \times$ $\beta < \alpha$

$y = -5x^2 + 4x + \beta \rightarrow S = \frac{4}{5} = \alpha + \beta \rightarrow -\frac{1}{5} + \beta = \frac{4}{5}$

$\beta = 1$ ✓ (۲)

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$\rightarrow y = -2x^2 + 4x + 1$

ext | $\frac{2}{10}$ $\frac{12}{10}$ حاصل

$x^2 - (a^2+b^2-12)x + a+b-1 = 0$ $a+b=5$ (10)

$P = a+b-1 = ab \rightarrow ab - a - b + 1 = 0 \rightarrow (a-1)(b-1)$

$a=1$

$S = a+b = a^2+b^2-12 \rightarrow 1+b = 1+b^2-12$

$\rightarrow b^2 - b - 12 = 0 \rightarrow (b-4)(b+3) = 0$ (2)

4 ✓ -3 ✗