بنام خدا

زهرا سهرابی

(۱

الف) $y=2x^2-4x+1$ ext $\left| \frac{-b}{2a}=\frac{4}{4}=1 \right.$ جای گذاری → -1 min دارد ext $\left|\begin{matrix}1\\-1\end{matrix}\right.$

ب) $y=-2x^2+3x-5$ ext $\left| \frac{-b}{2a}=\frac{-3}{-4}=\frac{3}{4} \right.$

$-\frac{\Delta}{4a}=-\frac{(9-4(-2)(-5))}{-8}=\frac{-31}{8}$ max دارد $\left|\begin{matrix}\frac{3}{4}\\-\frac{31}{8}\end{matrix}\right.$

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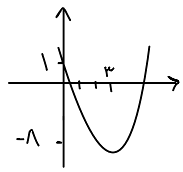
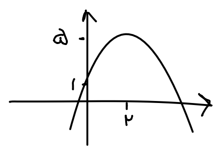
الف) $y=x^2-6x+1$ عرض از مبدأ
$a>0\to \min$ ext $\left| \frac{6}{2}=3 \right.$ جای گذاری -8



ب) $y=-x^2+4x+1$
$a<0\to \max$ ext $\left| \frac{-b}{2a}=2 \right.$ جای گذاری 5



(۳

$\alpha+\beta+\gamma=-\frac{k}{4}$ $\gamma=-\frac{1}{4}$ $1-\frac{1}{4}=-\frac{k}{4}\to\frac{3}{4}=-\frac{k}{4}\to\boxed{k=-3}$

$\alpha\cdot\beta\cdot\gamma=\frac{2}{4}$

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$(\sqrt\alpha-\sqrt\beta)^2=1^2\to\alpha+\beta-2\sqrt{\alpha\beta}=S-2\sqrt P$ $3t^2-2t-1=0$ $\sqrt m=t$

$3m-2\sqrt m=1\to 3m-2\sqrt m-1=0$

$\Delta=4-4(3)(-1)=16$

$t=\frac{2\pm4}{6}$ → $1\to\sqrt1=1$ ✓

→ $-\frac{1}{3}\to\sqrt{-\frac{1}{3}}$ غیرقابل قبول

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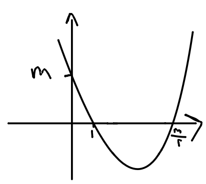
$y=\underbrace{2}_{a}x^2\underbrace{-(m+2)}_{b}x+\underbrace{m}_{c}$

$a+b+c=0$ $\begin{cases}x_1=1\\ x_2=\frac{m}{2}\end{cases}$

$y=2x^2-(m+2)x+m$



مساحت $=\frac{3}{4}=\frac{1}{2}\times m\times(\frac{m}{2}-1)=\frac{1}{2}m(\frac{m-2}{2})\to\frac{m^2-2m}{4}=\frac{3}{4}$

$m^2-2m=3$

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

$\boxed{-1}$ $-\frac{c}{a}=\boxed{3}$

$x_1=\frac{-b}{2a}=\frac{m+2}{4}$ → $\boxed{\frac{1}{4}}$ → $\boxed{\frac{5}{4}}$

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$y=ax^2+3x+a$ ext $\left| \begin{matrix}\frac{-b}{2a}=\frac{-3}{2a}\\ -\frac{\Delta}{4a}=\frac{7}{8}\end{matrix}\right.$ min دارد → $a>0$

$\frac{7}{8}=a(-\frac{3}{2a})^2+3(-\frac{3}{2a})+a$

$\frac{7}{8}=\frac{9a}{4a^2}-\frac{9}{2a}+\frac{2a^2}{2a}\to\frac{9}{4a}-\frac{18}{4a}+\frac{4a^2}{4a}=\frac{-9+4a^2}{4a}=\frac{7}{8}\to -72+32a^2=28a$

$32a^2-28a-72=0\xrightarrow{\div4}8a^2-7a-18=0$

$a^2-7a-144=0$

$(a+9)(a-16)$

$a=-\frac{9}{8}$ غ ق ق → $a>0$ min

$a=\frac{16}{8}=2$

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$x^2-(a+1)x+a=0 \to 2k+1 ,\ 2k-1 \to S=\frac{-b}{a} \to (a,1),(2k+1,2k-1)$

$a=4k-1$

$P=\frac{c}{a}=a \to (2k+1)(2k-1)$

$4k^2-1=9$

$3a+1 \to z+z^2+2a+1 \to 2z=2a-1$

$a=2$

$z=4$

$4k(k-1)$

$\cancel{k=0}$ $\to k=1$ ✓

$a=4k-1 \to a=3$

$x^2-(2a+1)+b=0 \to z ,\ z+2$

$b=P=z(z+2) ,\ b$

$4a+1 \quad 24$

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(٨

$y=-ax^2+ax+2 \to -\frac{b}{2a}=\frac{1}{2}$

$y=2bx^2-bx-1 = -\frac{b}{4b}=\frac{1}{4}$

$\frac{1}{2} \to -a \times \frac{1}{4}+\frac{1}{2}a+2 = \frac{a+8}{4}$

$\frac{1}{2} \to 2b \times \frac{1}{4} - b \times \frac{1}{2} - 1 = -1$

$\to \frac{a+8}{4}=-1 \to a+8=-4$

$a=-12$

$\frac{1}{4} \to -a \times \frac{1}{16}+\frac{a}{4}+2=\frac{3a+32}{16}$

$\frac{1}{4} \to 2b \times \frac{1}{16} - b \times \frac{1}{4} - 1 = \frac{-b-8}{8}$

$b-a=-6-(-12)=(+6)$

$b=6$

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9) $\alpha.\beta + \frac{\beta}{25x} \Rightarrow y=-5x^2+4x+1 \quad \alpha > \frac{1}{5}$

ext $\left| \frac{4}{10} \right.$ $\frac{16+20}{20}=\frac{36}{20}$

Q منفی

$\alpha.\beta = \frac{-4}{25\alpha} \to \frac{1}{5} \to -1 \leq \alpha < \beta$

$\to -\frac{1}{5} \to 1$ ✓

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10) $a.b=a+b-1 \to P=S-1$

$a+b=a^2+b^2-12 \to S=S^2-2P-12$

$S=S^2-2(S-1)-12$

$S=S^2-2S+10$

$S^2-3S-10=0$

$S=5$

$S=-2\alpha = \alpha+\beta$