حسا

$x^2 - \overset{a+b}{S}x + \overset{ab}{P} = 0 \qquad S = r_1 + r_2 \qquad P = r_1 r_2$ ۱۰-

$a + b = a^2 + b^2 - 12 \qquad ab = a + b - 1$

$a^2 + b^2 = (a+b)^2 - 2ab = S^2 - 2P \to S = S^2 - 2P - 12 \Rightarrow P = S - 1$

$S = S^2 - 2(S-1) - 12 \Rightarrow S = S^2 - 2S + 2 - 12 \Rightarrow S = S^2 - 2S - 10 \Rightarrow$

غ ق ق

$0 = S^2 - 3S - 10 \Rightarrow \Delta = 9 + 40 = 49 \qquad S = \frac{3 \pm 7}{2} = \frac{10}{5} = 2 \,,\ \frac{-4}{2} = -2$

$a + b = S = 5 \qquad P = S - 1 = 4 \qquad a + b = 5 \qquad ab = 4$

$t^2 - 5t + 4 = 0 \Rightarrow t = 1, 4 \qquad a + b = \boxed{5}$

~~$y = 25\alpha x^2 + 4x + \beta$~~ $y = 25\alpha x^2 + 4x + \beta \Rightarrow K(x-\alpha)(x-\beta)$ ۹-

$K = 25\alpha \to y = 25\alpha(x-\alpha)(x-\beta)$

$x_1 = \frac{\alpha+\beta}{2} \qquad \alpha \geq 1 \,,\ \beta \geq 2 \Rightarrow \beta > \alpha \Rightarrow \frac{\alpha+\beta}{2} > 0 \qquad 25\alpha > 0$

$y < 0 \longrightarrow$ رأس سهمی در ناحیه چهارم قرار دارد

Subject: Date:

$x_{۱} = -\frac{b}{۲a} = -\frac{۳}{۲a}$ $\quad y_{۱} = a\left(-\frac{۳}{۲a}\right)^{۲} + ۳\left(-\frac{۳}{۲a}\right) + a = \frac{۹}{۴a} - \frac{۹}{۲a} + a$

$= a - \frac{۹}{۴a}$ $\quad y_{۱} = \frac{۷}{۸} = a - \frac{۹}{۴a} \Rightarrow ۸a^{۲} - ۱۸ = ۷a \Rightarrow ۸a^{۲} - ۷a - ۱۸ = ۰$

$a = \frac{۷ \pm \sqrt{۶۲۵}}{۱۶} = \frac{۷ \pm ۲۵}{۱۶} \Rightarrow \boxed{a_{۱} = ۲ \quad a_{۲} = -\frac{۹}{۸}}$

حسا شعرباف

Subject: Date:

۸- $y = ax^2 + ax + 2 \qquad S\left(\frac{1}{2}, \frac{a^2+8a}{4a}\right)$

$y = 2bx^2 - bx - 1 \qquad S\left(\frac{1}{4}, \frac{b^2+8b}{-8b}\right)$

$2b\left(\frac{1}{4}\right) - b\left(\frac{1}{2}\right) - 1 = \frac{a}{4} + 2 \Rightarrow \frac{a}{4} = -3 \Rightarrow a = -12$

$-\frac{a}{16} + \frac{a}{4} + 2 = \frac{-b}{8} - 1 \Rightarrow \frac{12}{16} = \frac{-b}{8} \Rightarrow b = -6 \qquad b - a = -6 - -12 = \boxed{6}$

۷- $2n+1,\ 2n+3 \qquad x^2 - Sx + P = 0 \qquad x^2 - (a+1)x + a = 0$

$\Rightarrow (2n+1) + (2n+3) = 4n + 4 = a + 1 \rightarrow a = 4n + 3$

$(2n+1)(2n+3) = 4n^2 + 8n + 3 = a \rightarrow 4n^2 + 8n + \cancel{3} = 4n + \cancel{3} \Rightarrow$

$4n^2 + 4n = 0 \Rightarrow 4n(n+1) = 0 \rightarrow n = 0, -1 \rightarrow$ غ ق ق

طبیعی

$a = 4(0) + 3 = 3 \rightarrow 2(0) + 1 = 1 \qquad 2(0) + 3 = 3 \longrightarrow$

$1 \times 3 = 3 \longrightarrow P_1 \qquad , \quad x^2 - (3a+1)x + b = 0$

$2k,\ 2k+2 \qquad 2k + (2k+2) = 4k + 2 = 3a + 1 \longrightarrow 3a + 1 = 3 \times 3 + 1 = 10$

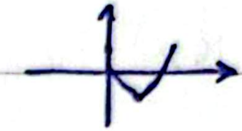
$\rightarrow 4k + 2 = 10 \Rightarrow 4k = 8 \Rightarrow k = 2 \longrightarrow 2k = 4,\ 2k + 2 = 6$

$6 \times 4 = 24 \rightarrow P_2 \qquad b = 24 \qquad \left.\begin{matrix} P_1 = 3 \\ P_2 = 24 \end{matrix}\right\} 24 - 3 = \boxed{21}$

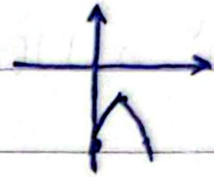
حسنا شهریاف

Subject: $a>۰ \rightarrow min$ Date:

۱- الف) $y = ۲x^۲ - ۴x + ۱$ ext $\left| \begin{array}{l} \frac{-b}{۲a} = \frac{۴}{۴} = ۱ \\ \frac{-\Delta}{۴a} = \frac{-۸}{۸} = -۱ \end{array} \right.$ $(۱, -۱) \downarrow min$



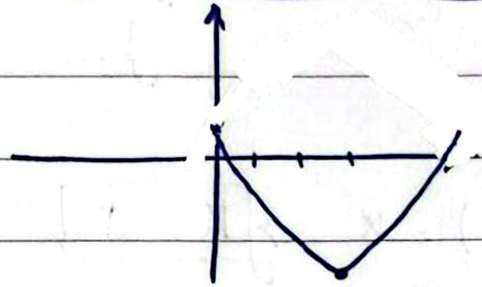
ب) $y = -x^۲ + ۳x - ۵$ ext $\left| \begin{array}{l} +\frac{۳}{۲} \\ -۲,۷۵ \end{array} \right.$ $(\frac{۳}{۲}, -۲,۷۵) \downarrow max$



$a<۰$ max

۲- الف) $y = x^۲ - ۶x + ۱$

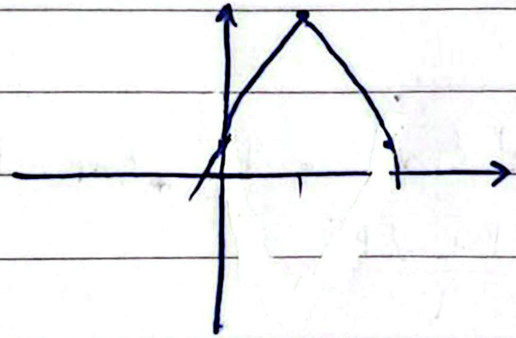
ext $\left| \begin{array}{l} ۳ \\ -۸ \end{array} \right.$



min

ب) $y = -x^۲ + ۴x + ۱$

ext $\left| \begin{array}{l} ۲ \\ +۵ \end{array} \right.$



max

Subject: Date:

$4x^3+Kx^2-9x-2=0 \qquad \alpha\beta=-2 \qquad \alpha+\beta=1$ -۳

$4(x-\alpha)(x-\beta)(x-r)=0 \to (x-\alpha)(x-\beta)=x^2-(\alpha+\beta)x+\alpha\beta=x^2-x-2$

$4(x^2-x-2)(x-r)=0 \to 4[x^3-(1+r)x^2+(-2+r)x+2r]=0 \to$

$4x^3\underbrace{-4(1+r)x^2}_{K}+\underbrace{4(r-2)x}_{-9}+\underbrace{8r}_{-2}=0 \to \boxed{r=-\frac{1}{4}} \Rightarrow K=-4(1+r)\Rightarrow$

$-4(1-\frac{1}{4})=K \Rightarrow -4(\frac{3}{4})=K \Rightarrow \boxed{K=-3}$

$|\alpha-\beta|=\sqrt{b^2-4c}$ -۴

$\sqrt{9m^2-4m}=1 \Rightarrow 9m^2-4m=1 \Rightarrow 9m^2-4m-1=0$

$b=-3m \qquad c=m \qquad m=\frac{2\pm\sqrt{13}}{9}$

$2x^2-mx-m=0 \qquad \frac{c}{a}=\frac{-m}{2} \Rightarrow P=-\frac{1}{2}\left(\frac{2\pm\sqrt{13}}{9}\right)=-\frac{1}{9}\mp\frac{\sqrt{13}}{18}$

$\Rightarrow P=-\frac{1}{9}\mp\frac{\sqrt{13}}{18}$

$y=2x^2-(m+2)x+m \qquad A(x_1,0),\ B(x_2,0)$ -۵

اگر $x=0 \to y=m \qquad C(0,m) \qquad |x_2-x_1|=\frac{\sqrt{(m+2)^2-8m}}{2}=$

$\frac{\sqrt{m^2-4m+4}}{2} \to h=m \qquad S=\frac{1}{2}\times\frac{|m-2|}{2}\times m=\frac{m|m-2|}{4}=\frac{3}{4}$

$m|m-2|=3$

1) $m>2 \to m^2-2m-3=0 \quad (m-3)(m+1)=0 \to \boxed{m=3}$

$m<2 \to 2m-m^2=3 \Rightarrow -2m+m^2+3=0 \to \Delta<0$ جواب ندارد

s.a.m

$y=x^2-mx+1 \qquad x_1=\frac{m}{2} \qquad y_1=1-\frac{m^2}{4} \qquad r=\sqrt{(\frac{3}{2})^2+(1-\frac{9}{4})^2}=\sqrt{2.25+(-1.25)^2}\simeq\boxed{1.95}$

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