روزبه [illegible]

به نام خدا

(1)

$y=ax^2+bx+c$ $\qquad$ $9=x^2-18ax+c$

رأس A

$\rightarrow \frac{-b}{2a}=9 \Rightarrow 18a=-b \longrightarrow y=(x+1)^2+9 \longrightarrow 1=a(3+1)^2+9$

$1=16a+9$

$16a=-8$

$a=\frac{-1}{2} \Rightarrow y=\frac{-1}{2}(x+1)^2+9$

$\Rightarrow y=\frac{-x^2}{2}-\frac{1}{2}-x+9$

$\boxed{y=\frac{-x^2}{2}-x-\frac{-17}{2}}$

(2)

$2x^2+mx+m+6=0$

$\Delta>0$ $\qquad$ $\Delta=0$

$+\ -$ $\qquad$ $\boxed{+\rightarrow 2}$

$\boxed{+\ +\rightarrow 4}$ $\qquad$ $-\rightarrow 0$

$+\ 0\rightarrow 3$ $\qquad$ $0\rightarrow 1$

$-\ 0\rightarrow 1$

$\Delta>0 \longrightarrow \frac{-b}{a}>0 \rightarrow \frac{-m}{2}>0 \Rightarrow \boxed{m<0}$

$\Delta>0 \longrightarrow m^2-4(m+6)(2)>0 \Rightarrow m^2-8m-48>0 \Rightarrow (m-12)(m+4)>0$

-4		12	
$+$	$-$		$+$

$P=\frac{m+6}{2}>0$ $\qquad$ $\boxed{m<-4 \;,\; m>12}$

$\longrightarrow \boxed{m>-6}$

$\Rightarrow \boxed{m:(-6,-4)}$

(3)

$3x^2+(2m-1)x+2-m=0$ $\qquad$ $\Delta>0 \rightarrow (2m-1)^2-4(2-m)(3)>0$

$m \rightarrow -1 \quad \Delta<0$

$\frac{-b}{a}=\frac{a}{c} \rightarrow \frac{-2m+1}{3}=\frac{3}{2-m} \Rightarrow 9=-4m+2+2m^2-m$

$0=2m^2-5m-7$

$m^2-5m-14 \rightarrow (m-7)(m+2) \longrightarrow \boxed{m=\frac{7}{2}}$ ✓

$m=\frac{-2}{2}=\boxed{-1}$ غلط

$\Delta<0$

(4)

$x=x^2-4 \rightarrow x^2-x-4=0 \longrightarrow S=\frac{-b}{a}=1 \qquad P=\frac{c}{a}=-4$

$x_1^3+\frac{1}{x_2}$

$x_2^3+\frac{1}{x_1}$

$\rightarrow S=\alpha+\beta \Rightarrow (x_1+x_2)^3-3x_1x_2(x_1+x_2)+\frac{x_1+x_2}{x_1x_2} \Rightarrow$

$(1)^3-3(-4)(1)+\frac{(1)}{-4} \Rightarrow 13-\frac{1}{4}=\frac{51}{4}$

$x^2-\frac{51}{4}x-\frac{221}{4}=0 \Rightarrow$

$\boxed{4x^2-51x-221}$

$\alpha\cdot\beta \rightarrow (x_1x_2)^3+(x_1+x_2)^2-2x_1x_2+\frac{1}{x_1x_2} \Rightarrow -64+1+8-\frac{1}{4} \Rightarrow \frac{-221}{4}$

(5)

$\left(\sqrt[3]{x^2}+\frac{1}{\sqrt[3]{x^2}}+1\right)\left(\sqrt[3]{x^2}-1\right)=2\sqrt[3]{x} \rightarrow \sqrt[3]{x}=t \rightarrow \left(t^2+\frac{1}{t^2}+1\right)(t^2-1)=2t$

$t^4-\cancel{t^2}+\cancel{1}-\frac{1}{t^2}+\cancel{t^2}-\cancel{1}=2t$

$t^4-\frac{1}{t^2}=2t$

$t^6-1=2t^3 \rightarrow \omega$

$\omega^2-2\omega-1=0$

$\Delta=b^2-4ac \Rightarrow 4-4\times(1)(-1)=8$

$\frac{2\pm\sqrt{8}}{2} \longrightarrow 1\pm\sqrt{2}=\omega$

$1\pm\sqrt{2}=t^3=x$

$1\pm\sqrt{2}=x \rightarrow$

$\boxed{(1+\sqrt{2})+(1-\sqrt{2})=2}$

(6)

$3x^2-ax+4=0 \longrightarrow P=\frac{c}{a} \Rightarrow \frac{4}{3}=3\alpha^2$

$\left.\begin{matrix}\alpha\\3\alpha\end{matrix}\right\} \Rightarrow 3\alpha^2$

$4=9\alpha^2 \longrightarrow \frac{4}{9}=\alpha^2 \rightarrow \alpha=\pm\frac{2}{3}$

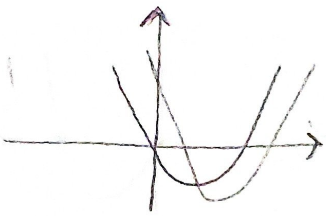
$\alpha=\frac{2}{3} \quad \beta=2$

$\alpha=-\frac{2}{3} \quad \beta=-2$

$S \longrightarrow 2+\frac{2}{3} \Rightarrow \frac{8}{3}=\frac{-b}{a} \rightarrow \frac{8}{3}=\frac{a}{3} \Rightarrow 8$

$\frac{-2}{3}-2=\frac{-8}{3} \rightarrow \frac{-b}{a}=\frac{-8}{3}=\frac{a}{3} \Rightarrow -8$

$\Rightarrow 8-{-8}=\boxed{16}$



$y = ax^2 + (3+2a)x$

$\boxed{a > 0}$

$S > 0 \Rightarrow \frac{-b}{a} = \frac{-3-2a}{a} > 0 \Rightarrow$ $\begin{array}{c|c|c|c} & -\frac{3}{2} & & 0 \\ - & & + & & - \end{array}$ $\boxed{-\frac{3}{2} < a < 0}$

$\Delta > 0 \Rightarrow (3+2a)^2 > 0 \rightarrow$ $\begin{array}{c|c} & -\frac{3}{2} \\ - & + \end{array}$ $\Rightarrow \boxed{a > -\frac{3}{2}}$

اشتراک $\Rightarrow$ ندارد = هیچ مقدار a

(۷)

$y = x^2 + ax - 2$

$y = -x^2 - 2x + b$

$\frac{-b}{2a} \Rightarrow \frac{-a}{2} = \frac{2}{-2} \Rightarrow \boxed{a = +2}$

$y \rightarrow x^2 + 2x - 2 = 1 \rightarrow (x+3)(x-1)$ $\begin{cases} x = 1 \\ x = -3 \end{cases}$ $ab = 4 \times 2 = \boxed{8}$

دومی $\rightarrow -(x-1)(x+3) + 1 \Rightarrow -x^2 - 2x + \underset{b}{4}$

(۸)

$2x^2 - ax + b = 0$

$2ax^2 + ax - 6 = 0$

$\alpha + \beta \rightarrow \alpha + \beta \Rightarrow \frac{a}{2} \Rightarrow \frac{1}{2}$

$\alpha + 0.5 \quad \beta + 0.5 \Rightarrow \alpha + \beta + 1 \Rightarrow \frac{+a}{2} = \frac{-\cancel{a}}{2\cancel{a}} + 1 \Rightarrow \boxed{a = 1}$

$(\alpha + 0.5)(\beta + 0.5) \Rightarrow \alpha\beta + 0.5\alpha + 0.5\beta + 0.25 \Rightarrow \frac{b}{2}$ $\quad \left[\frac{ab}{4}\right] = \left[\frac{-6}{4}\right] = \boxed{-2}$

$-3 + 0.5(\alpha + \beta) + 0.25 = \frac{b}{2}$

$-3 + \underbrace{\cancel{\frac{a}{2}\left(\frac{1}{2}\right)}}_{-0.25} + 0.25 = \frac{b}{2}$

$\boxed{b = -6}$

(۹)

$x^2 + 6x + m = 0$

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

$-6 + 2 = -4$

$(\alpha + \beta) - (\alpha + \beta') \Rightarrow \beta - \beta' \Rightarrow \frac{-2}{1} - \left(\frac{-6}{1}\right) = \boxed{4}$

(۱۰)