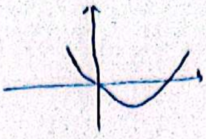
①

الف) $a>0 \longrightarrow min$ 　 $\frac{-b}{a}=\frac{2}{3}$ 　 $\frac{c}{a}=0$

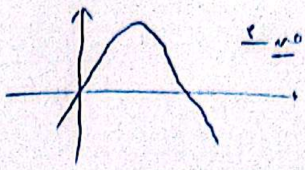
$\llcorner\ \frac{-b}{2a}=\frac{2}{3}$



ناحیه ۳

ب) $a<0 \longrightarrow max$ 　 $\frac{-b}{a}=\frac{-4}{-1}=4$ 　 $\frac{c}{a}=0$

$\llcorner\ \frac{-b}{2a}=\frac{-4}{-2}=2$



ناحیه ۲

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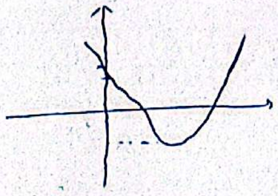
②

الف) $a>0 \longrightarrow min$ 　 $\Delta=25-16=9$

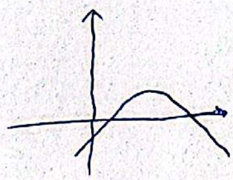
۲ = عرض از مبدأ 　 $x=2, \frac{1}{2}$



ناحیه اول و دوم و چهارم

ب) $a<0 \longrightarrow max$ 　 $\Delta=16-4=12$

۱- = عرض از مبدأ 　 $x=\frac{-4\pm\sqrt{12}}{-2}$



ناحیه اول و سوم و چهارم

الف) $\frac{-b}{a}=1$ 　 $\Delta=1+12=13$

$\frac{\sqrt{\Delta}}{a}=\frac{\sqrt{13}}{1}$ 　 $\frac{1}{\sqrt{13}}=\frac{\sqrt{13}}{13}$

ج) $1^2-4(-3)(1)=1+9=10$

S^2-4P

ب) $\frac{-b}{a}=1$ 　 $\frac{c}{a}=-3$ 　 $(\alpha+\beta)^2-2\alpha\beta \longrightarrow 1^2-2(-3)=7$

د) $(\alpha-\beta)(\alpha^2+\alpha\beta+\beta^2) \longrightarrow \sqrt{13}(7-3)=4\sqrt{13}$

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④ $x=1$ ریشه

$x^2-ax+a=0 \longrightarrow \Delta=a^2-4a \longrightarrow a(a-4)$

$\Delta<0 \longrightarrow a(a-4)<0$

$0<a<4$

یا $\Delta=0$

$\llcorner\ a=0, 4$

اگر $a=1$ عبارت همواره مثبت است صفر نمی‌شود

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⑤ $3\alpha^2-12\alpha=a \longrightarrow \alpha^2-4\alpha=\frac{a}{3}$

$\alpha^2+\beta^2=16+\frac{2a}{3}$

$16+\frac{2a}{3}+\frac{a}{3}=7 \longrightarrow 16+a=7 \longrightarrow a=-9$

معادله $\longrightarrow 3x^2-12x+9$

$x^2-4x+3 \longrightarrow (x-1)(x-3)$

$\frac{-9}{3}=-3$ 　 ریشه ۳ برابر بزرگتر از ۳

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⑥ رأس $\longrightarrow 2a+3+7-2a \longrightarrow 10 \longrightarrow \frac{10}{2}=5=b \longrightarrow (5,3)$

بدون تساوی $\longrightarrow 7-2a\geq1 \longrightarrow a\leq3$

$a-2\geq1 \longrightarrow a\geq3$

$\Big\}\ a=3 \longrightarrow 2a+3 \longrightarrow 9$

$a-2 \longrightarrow 1$

$7-2a \longrightarrow 1$

$(9,1)$

$A(9-5)^2+3$

$1=16A+3$

$A=\frac{-1}{8}$

عرض از مبدأ $\longrightarrow x=0$

$y=\frac{-1}{8}(25)+3 \longrightarrow \frac{-25}{8}+\frac{24}{8}=-\frac{1}{8}$

(۷)

$ax^2 - ax - b = 0 \xrightarrow{\beta \text{ ریشه}} a\beta^2 - a\beta - b = 0 \longrightarrow \beta^2 = \beta + \frac{b}{a}$

$\alpha^2 + \alpha + \frac{b}{a}$

$t_0(\beta + \frac{b}{a}) + r_0(\alpha + \frac{b}{a}) - r_0\beta = 1V$

$(r_0\beta - r_0\beta) + r_0\alpha + q_0\frac{b}{a} = 1V$

$r_0(\underbrace{\alpha + \beta}_{1}) + q_0\frac{b}{a} = 1V$

$\hookrightarrow q_0\frac{b}{a} = -r$

$\frac{b}{a} = \frac{-1}{r_0}$

$\frac{c}{a} = \frac{b}{a}$

$\frac{-b}{a} = \frac{a}{a} = 1$

$|\alpha - \beta| = \sqrt{\alpha^2 + \beta^2 - 2\alpha\beta} \longrightarrow \sqrt{1^2 - 2\frac{1}{r_0}} \longrightarrow \sqrt{1 - \frac{1}{9}} = \sqrt{\frac{8}{9}}$

$\hookrightarrow \frac{r\sqrt{9}}{9}$

$\frac{-b}{a} = \frac{b}{a} = \frac{1}{r_0} \longrightarrow \frac{-b}{a} = \frac{1}{r_0}$

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(۸)

$\frac{1-\omega}{r} = -r \longrightarrow (-r_9 = \frac{1}{r})$

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

$\frac{r}{r} = a(0+r)^2 - \frac{1}{r} \longrightarrow \frac{r}{9} = 8a - \frac{1}{r} \longrightarrow 8a = r \longrightarrow a = \frac{1}{r}$

$y = \frac{1}{r}(1+r)^2 - \frac{1}{r} \longrightarrow \frac{1}{r}(9) - \frac{1}{r} = 8 \longrightarrow B$

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(۹)

$\alpha + \beta = \frac{-b}{a} = -9$

$\alpha\beta = 0$

$\alpha^2 + \beta^2 = r9 - r\alpha$

$\beta = -9 - \alpha$

$r\alpha^2 + r(-9-\alpha)^2 = 1r\sqrt{r} + 18\omega \longrightarrow (-9-\alpha)^2 = \alpha^2 + 12\alpha + r9 \longrightarrow r\alpha^2 + r(\alpha^2 + r\alpha + r9) + 1r\sqrt{r} + 18\omega$

$r\alpha^2 + r\alpha^2 + r8\alpha + 72 = 1r\sqrt{r} + 18\omega \longrightarrow \omega\alpha^2 + r8\alpha - 1^2 - 1r\sqrt{r} = 0$

$\frac{-b \pm \sqrt{\Delta}}{r\alpha} = \frac{-r8 \pm \sqrt{r8^2 - 8 \times \omega(-1^2 - 1r\sqrt{r}}}{10}$

$\hookrightarrow \alpha = 21 - 9\sqrt{r}$

$\alpha = \alpha\beta$ ↑

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(۱۰)

$r9x^2 - (m+1f)x + 1 \longrightarrow \alpha + \beta = \frac{m+1f}{r9}$

$\alpha\beta = \frac{1}{r9}$

$\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = \omega \longrightarrow \frac{\sqrt{\alpha} + \sqrt{\beta}}{\sqrt{\alpha\beta}} = \omega \longrightarrow \frac{\omega}{9} = \sqrt{\alpha} + \sqrt{\beta} \longrightarrow \underbrace{\alpha + \beta}_{} + r\sqrt{\alpha\beta} = \frac{r\omega}{r9}$

$\frac{m+1f}{r9} + \frac{r}{9} \longrightarrow \frac{1r}{r9} = \frac{1}{r} = \frac{m+1f}{r9}$

$\hookrightarrow m = -1$

$\frac{c}{a} = \frac{r}{\omega} \longrightarrow x^2 + rx + r$

$-r$ ↵