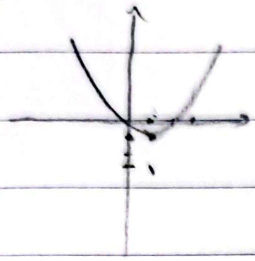
Subject: Date: ناظم موسوی

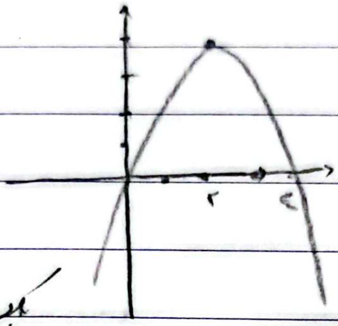
$y = 2x^2 - 2x$ $a > 0$ ext | $\frac{-b}{2a} = \frac{2}{4} = \frac{1}{2}$

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



یک ریشه صفر

از ناحیه سوم



$y = -x^2 + 4x$ ext | $\frac{-b}{2a} = \frac{-4}{-2} = 2$

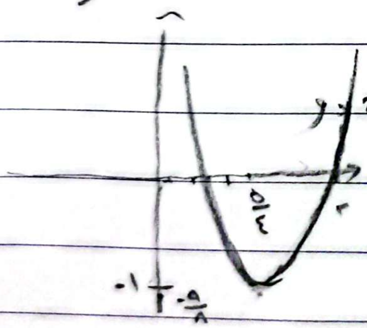
$-4 + 8 = 4$

یک ریشه صفر

از ناحیه دوم

۲- الف) $y = 2x^2 - 5x + 3$ ext | $\frac{-b}{2a} = \frac{5}{4}$

$\frac{-\Delta}{4a} = \frac{-(25-16)}{4a} = \frac{-9}{8}$



$y = x^2 - 5x + 4 = (x-4)(x-1)$

از ناحیه سوم نمی‌گذرد

$x < \frac{1}{2}$

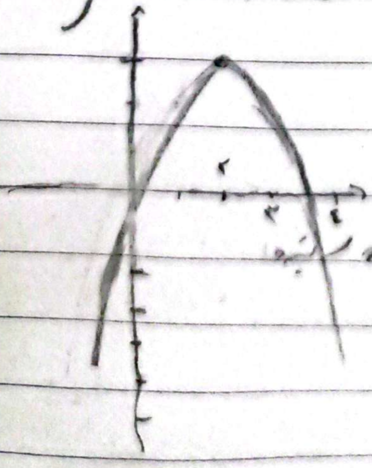
$\frac{4}{2}$

ب) $y = -x^2 + 4x - 1$ ext | $\frac{-b}{2a} = \frac{-4}{-2} = 2$

$= -4 + 8 - 1 = 3$

$x = 1 \Rightarrow -1 + 4 - 1 = 2$

$x = -1 \Rightarrow -1 - 4 - 1 = -6$



ریشه $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $= \frac{-4 + \sqrt{12}}{-2} = 2 - \frac{\sqrt{3}}{1.7} = 0.3$

$= \frac{-4 - \sqrt{12}}{-2} = 2 + \sqrt{3} = 3.7$

1.7

از ناحیه ۲ می‌گذرد

Subject: Date:

$\alpha+\beta = \frac{-b}{a} = \frac{1}{1} = 1$ $\quad \alpha\beta = \frac{c}{a} = \frac{-3}{1} = -3$ ـ۳

$\alpha-\beta = \frac{\sqrt{\Delta}}{|a|} = \sqrt{1+12} = \sqrt{13}$

الف) $\frac{1}{\sqrt{13}}$

ب) $S^2 - 2P = 1 + 6 = 7$

ج) $(\alpha+\beta)(\alpha^2+\beta^2-\alpha\beta) = 1 \cdot 7$

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

$\sqrt{13} \quad (S^2 - 2P + P) = (S^2 - P)$

ـ۴

۲ ریشه‌ی $(x-2)(x^2-ax+a) = 0$ ریشه‌ی مضاعف دارد

$(x-2)^2 = x^2 - 4x + 4$ $\quad a = 4$ ریشه‌ی مضاعف $\Delta = 0$ $\quad a^2 - 4a = 0$

$a(a-4) = 0$ $\quad a \in \{0, 4\}$

ـ۵

$\alpha^2+\beta^2+\alpha^2-4\alpha = 7 \rightarrow$

$14 + 2a \quad \frac{a}{2}$ $\quad 14 + a = 7$ $\quad a = -9$

$\alpha = x$ $\quad 2\alpha^2 - 12\alpha = a$ $\quad \alpha^2 - 4\alpha = \frac{a}{2}$

$\alpha^2+\beta^2 = S^2 - 2P = 14 - \frac{2\alpha - a}{2} = 19 + \frac{5a}{2}$

$S = \frac{-b}{a} = \frac{12}{3} = 4$

$P = \frac{c}{a}, \frac{-a}{2}$

$x = \frac{-b+\sqrt{b^2-4ac}}{2a}$ $\quad$ ب) $\frac{12+\sqrt{144-4\times9\times2}}{4}$

$\frac{12+\sqrt{12(12-9)}}{4} = \frac{18}{4}, 3$ $\quad \frac{-9}{3} = -3$

s.a.m

Subject: $mx^2+nx+c=y$ Date:

$b=\frac{V-ra+ra+r}{r}=d$ $b=r$ $\frac{-n}{rm}=o$ $-n=1.m$

ext (o,r) $n=-1.m$

$ra+r\geq 1$ $v-ra\geq 1$ $a-r\geq 1$

$ra\geq -r$ $q\geq ra$ $(a\leq r)$

$a\geq -1$ $\wedge$ $r\geq a$ $\cap$ $\Rightarrow a=r$

$B(1,1)$, $A(9,1)$ $mx^2+nx+c \rightarrow m+n+c=1$

$\lambda 1m+9n+c=1$

$1\ r\delta m+\delta n+c=r$

$-9m+c=1$ $\}$ $-9m-1=c$ $\}$ $-9m.1=-r\delta m-r$

$-r\delta m+c=r$ $\}$ $-r\delta m-r=c$ $\}$

$9m+1=r\delta m+r$ $-r=1q m \rightarrow m=\frac{-1}{\lambda}$

$-\frac{1}{\lambda}x^2+\frac{1o}{\lambda}x+c=y$ $x=1 \rightarrow -\frac{1}{\lambda}+\frac{1o}{\lambda}+c=1$

$\frac{9}{\lambda}+c=1$ $c=\frac{\lambda}{\lambda}$

s.a.m

$$\frac{1}{a} + \frac{1}{4} = \frac{1}{3}$$

$$x = \frac{-4 \pm \sqrt{24 - 8a}}{2} = \frac{-4 \pm 2\sqrt{9-a}}{2} = -2 \pm \sqrt{9-a}$$

$$\alpha = (-2 - \sqrt{9-a}) \quad \beta = (-2 + \sqrt{9-a})$$

$$\alpha^2 + \beta^2 = 5^2 - 2p = 24 - 2a$$

$$2(24 - 2a) + \alpha^2 = 2 \times 24 - 8a + 9 + 9 - a + 9\sqrt{9-a}$$

$$\frac{8 \times 18}{10} - 8a + 9\sqrt{9-a} = 72 + 12\sqrt{2} \quad a = 1$$

s.a.m

$\alpha, \beta \longrightarrow \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 0 \quad \left(\frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha\beta}} = 0\right)^2 \quad \alpha+\beta+2\sqrt{\alpha\beta} = 0$

$\alpha\beta = \frac{c}{a} = \frac{1}{36}$

$\alpha+\beta = \frac{-b}{a} = \frac{m+13}{36}$

$\alpha\beta = 0 \quad \left(\frac{m+13}{36} + 2\sqrt{\frac{1}{36}}\right) = 0$

$\frac{m+13}{36} + \frac{1}{3} = 0$

$m+13+12 = 0$

$m = -1$

$\alpha\beta = \frac{c}{a} = \frac{2}{m} = \boxed{-2}$