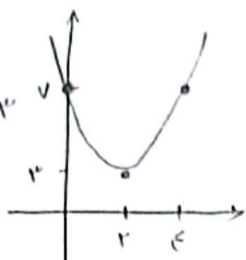


الف) $x^2 - 4x + 7$

$-\frac{b}{2a} = \frac{4}{2} = 2 \rightarrow x^2 - 4x + 7 = 1^2$

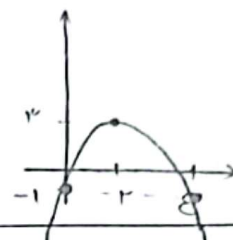
$x_1 = 2, x_2 = 2$
 $y_1 = 1, y_2 = 1$



ب) $x^2 + 2x - 1$

$-\frac{b}{2a} = \frac{-2}{2} = -1 \rightarrow x^2 + 2x - 1 = 3^2$

$x_1 = -3, x_2 = 1$
 $y_1 = -1, y_2 = -1$



الف) $\Delta > 0 \rightarrow m^2 + 2m + 1 - 2m - 1 > 0 \rightarrow m^2 - 1 > 0 \rightarrow (m-1)(m+1) > 0$

ب) $\Delta = 0 \rightarrow m^2 - 2m - 1 = 0$
 $(m-1)(m+1) = 0 \Rightarrow m = 1, -1$

ج) $\Delta < 0 \rightarrow (m-1)(m+1) < 0$
 $m \in (-1, 1)$

د) $\Delta > 0 \rightarrow (m-1)(m+1) > 0$

$m \in (-\infty, -1] \cup [1, +\infty)$ طبق الف و ب

$y = (m-2)x^2 - 2(m+1)x + 1$
 $S = \frac{2(m+1)}{m-2} < 0$
 $m \in (-1, 2)$

$S = \frac{2(m+1)}{m-2}$

$P = \frac{1}{m-2}$

$\Delta = 4m^2 + 4m + 4 - 4(m+1)^2$
 $4m^2 - 4m + 4$

$\frac{1}{m-2} > 0 \Rightarrow m \in (2, +\infty)$

$S(0, 1) \rightarrow m \in (-1, 2)$

$\frac{1}{m-2} < 0 \Rightarrow m \in (-\infty, 2)$

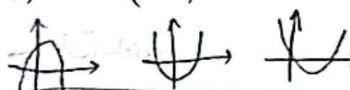
$\Delta > 0 \rightarrow m^2 - 4m + 4 > 0$

الف) $S < 0$
 $P > 0$
 $\Delta > 0$

ب) $S < 0$
 $P < 0$
 $\Delta > 0$

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

$y = (m-2)x^2 - 2(m+1)x + 1$
 $\Delta < 0$ پس دو ریشه حقیقی است



$m-2 < 0 \rightarrow m < 2 \Rightarrow m < 2$

$-\frac{b}{2a} = \frac{2(m+1)}{2(m-2)} = -1 \rightarrow -2m+2 = m+1$
 $3m = 1 \Rightarrow m = \frac{1}{3}$

$m = 1$

ب) $\frac{1}{m-2} < 0 \Rightarrow m < 2$
 $\frac{1}{m-2} < 0 \Rightarrow m < 2$

د) $P < 0$
 $S < 0$

$\frac{r^2}{r} - (r \sin \alpha) n + \frac{r}{r} = 0$

$\Delta > 0 \rightarrow r^2 \sin^2 \alpha - r^2 > 0$

$\sin^2 \alpha - 1 > 0$

$\Delta = 0$

$\sin^2 \alpha = 1 \rightarrow \sin \alpha = 1$

$\frac{r \sin \alpha}{r} = \frac{r \sin \alpha}{r} \xrightarrow{\sin \alpha = 1} \frac{r}{r}$

نقطه برخورد

$\frac{(1^r x^r - 1^r x - 1)(1^r x^r - 1^r x - \Delta)}{1 - x^r}$ $\frac{1^r x^r - 1^r x - 1}{1 - x^r} \rightarrow \frac{1^r x^r - 1^r x - 1}{1 - x^r} = \frac{1^r x^r - 1^r x - 1}{1 - x^r}$ $\frac{1^r x^r - 1^r x - 1}{1 - x^r} = \frac{1^r x^r - 1^r x - 1}{1 - x^r}$	6
$mx^r - (m+r)x - r = 0 \quad S = \frac{m+r}{m} \quad P = \frac{-r}{m} \xrightarrow{m=4} 4x^r - 4x - r = 0 \rightarrow 4x^r - 4x - 1$ $rS = \Delta P + V$ $\frac{r(m+r)}{m} = \frac{-1}{m} + V \rightarrow r(m+r) = -1 + Vm \rightarrow 14 = 4m$ $S^r - rP \rightarrow \frac{4}{r} + 1 = \frac{11}{r}$	7 تقریباً ۱۲ $\frac{1}{r} = \frac{1}{4}$ $\frac{11}{4} = 2.75$
$x^r - \Delta x + r = 0 \rightarrow \frac{-b}{a} = \Delta \rightarrow S = \Delta, \alpha = \Delta - \beta$ $\beta^r - \Delta \beta + r = 0 \rightarrow \beta^r = \Delta \beta - r \rightarrow \beta^r = (\Delta - \beta)^r = \Delta \beta^r - r \Delta \beta + r \rightarrow \beta^r = \Delta \beta - r$ $r \Delta (\Delta \beta - r) - r \Delta \beta + r = 0 \rightarrow 14 \Delta \beta - \Delta \cdot 14 + 14 = 0 \rightarrow \beta^r = 1.0 \Delta \beta - 4 \times \beta$ $1.0 \Delta \beta = 1.0 \Delta \beta - 4 \beta \rightarrow \beta^r = 1.0 \Delta (\Delta \beta - r) - 4 \beta \Rightarrow \beta^r = 4.79 \beta - 21$ $\frac{4\alpha + \Delta \beta^r}{\Delta \beta^r} \rightarrow \frac{4(\Delta - \beta) + 4.79 \beta - 21}{\Delta (\Delta \beta - r)} = \frac{4.79 \Delta \beta - 19}{2 \Delta \beta - 1} = \frac{19(2 \Delta \beta - 1)}{2 \Delta \beta - 1} = 19$	8
$y_1 = am^r + bn + c$ $y_r = 2n + 10 \quad n=2 \rightarrow 14 = y$ $y_r = 2n + 10 \quad n=-4 \rightarrow 4 = y$ $4a + 2b + c = 14$ $9a - 4b + c = 4$ $4a + 2b + c = 14$ $9a - 4b + c = 4$ $4a + 2b + c = 14$ $9a - 4b + c = 4$	9 تقاطع در سه نقطه است: $(0, 4), (-3, 4), (2, 14)$ $C = 4$ $4a + 2b + c = 14$ $9a - 4b + c = 4$ $4a + 2b + c = 14$ $9a - 4b + c = 4$
$y = 2x^r + (m+1)x + m + 9$ $y = x$ $2x^r + (m+1)x + m + 9 = x$ $2x^r + mx + m + 9 = 0$ $\Delta = 0$ $m^r - 18m - 48 = 0$ $(m-12)(m+4) = 0$ $m = 12, -4$	10 $y_1 = 2x^r + 12x + 18 = x^r + 4x + 9 = 0 \rightarrow x = -3$ $y_r = 2x^r - 4x + 2 = x^r - 2x + 1 = 0 \rightarrow x = 1$ $x = -3$ در ربع اول باشد و هر دو مثبت باشد x منفی بزرگتر نیست و m منفی است.