①

$y=(a-1)x^2+x+3$

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

$\frac{-1}{2a-2}=2 \quad 4a-4=-1 \quad 4a=3 \quad a=\frac{3}{4}$

$y=-\frac{1}{4}x^2+x+3$

$\Delta=1-(-\frac{1}{4})(2)(4)=1+2=4$

$x_{1,2}=\frac{-1\pm 2}{-\frac{1}{2}}$ → $\frac{-3}{-\frac{1}{2}}=+6$; $\frac{+1}{-\frac{1}{2}}=-2$

②

$f(x)=mx^2-5x+m$

x	x_1	x_2
$f(x)$	$-$ 0 $+$	0 $-$

$I \; m>0$

$\Delta>0$ دوتا ریشه

$25-4m^2>0$

$25>4m^2$

$II \quad -\frac{5}{2}<m<\frac{5}{2}$

$I \cap II = 0<m<\frac{5}{2}$

③

$\frac{3-\sqrt{5}}{2}$, $\frac{3+\sqrt{5}}{2}$ $\quad y=x^2-5x+6$

$S=\frac{3-\sqrt{5}+3+\sqrt{5}}{2}=\frac{6}{2}=3$

$P=\frac{(3-\sqrt{5})(3+\sqrt{5})}{2\times 2}=\frac{9-5}{4\times 2}=\frac{4}{9}$

$y=x^2-3x+\frac{4}{9}$

$2x^2 - 8x + (m+2) = 0$

$\alpha < \beta$

$3\alpha^2 + \beta^2 = 12$

$3\alpha^2 + (4-\alpha)^2 = 12$

$3\alpha^2 + 16 + \alpha^2 - 8\alpha = 12$

$4\alpha^2 - 8\alpha + 4 = 0$

$\alpha^2 - 2\alpha + 1 = 0$

$(\alpha - 1)^2 = 0$

$\alpha = 1$

$\alpha + \beta = \frac{+8}{2} = 4$

$\beta = 4 - \alpha$

$\beta = 3$

$S = 4 \quad P = 3$

$x^2 - Sx + P = 0$

$x^2 - 4x + 3 = 0$

$\times 2$

$2x^2 - 8x + 6 = 0$

$m + 2 = 6$

$m = 4$

نوشین اربیه - یازدهم سری B

(۵)

$S(2,9)$

محور عرض‌ها را در نقطه ۵

$y=a(x-h)^2+k$

$y=a(x-2)^2+9$

$5=a(-2)^2+9$

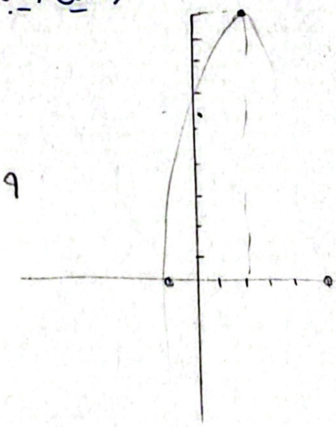
$-4=4a \quad a=-1$

$y=-1(x^2-4x+4)+9$

$y=-x^2+4x+5$

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

$y=-(x-5)(x+1)$



$[0,9]$ در بازه‌ی بین ۰ و ۹ بالای محور x هاست

(۶)

$\alpha x^2-7x+9\beta=0$

$\beta>0$

$\frac{1}{\alpha}+\frac{1}{\beta}=?$

$x=\alpha \quad \alpha^3-7\alpha+9\beta=0$

$-\frac{18}{\alpha}=9\beta=7\alpha-\alpha^3 \qquad -\frac{18}{\alpha}=7\alpha-\alpha^3$

$\alpha^4-7\alpha^2-18=0$

$x=\beta \quad \alpha\beta^2+2\beta=0 \qquad \beta(\alpha\beta+2)=0$

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

$t^2-7t-18=0 \qquad t_1,t_2=\frac{+7\pm 11}{2}\begin{cases}9 \checkmark\\ -2 \times\end{cases}$

$\Delta=121 \qquad \alpha^2=9 \quad \alpha=\pm 3$

$\begin{cases}\alpha=3 \quad \beta=-\frac{2}{3} \times\\ \alpha=-3 \quad \beta=\frac{2}{3} \checkmark\end{cases}$

$\frac{\alpha+\beta}{\alpha\beta}=\frac{-\frac{7}{3}}{-2}=\frac{7}{6}$

(۷)

$x^2+mx-2m=0 \qquad S=\alpha+\beta=?$

$\alpha^2-m\beta=8$

$\alpha^2+\alpha m-2m=0 \qquad \alpha^2=-\alpha m+2m$

$\alpha^2-m\beta=8 \qquad -m\alpha+2m-m\beta=8 \Rightarrow -m(\alpha+\beta)+2m=8$

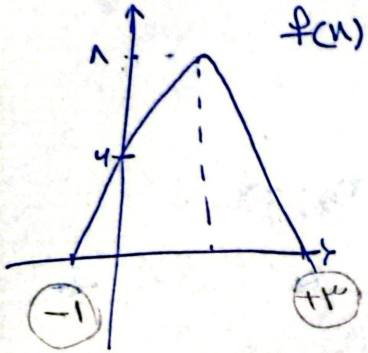
$\Delta=4+32=36 \qquad m=\frac{-2\pm 6}{2}=\begin{cases}-4\\ +2\end{cases}$

$m=-4 \qquad S=-m=+4$

$m=+2 \qquad S=-m=-2$

نوشین ترابیه - یازدهم سری B

(1)



$f(x) = mx^2 + 4x + \frac{m}{2} + 7$

$-\frac{\Delta}{4a} = 8 \quad -\frac{b^2 - 4ac}{4a} = 8 \quad -b^2 + 4ac = 32a$

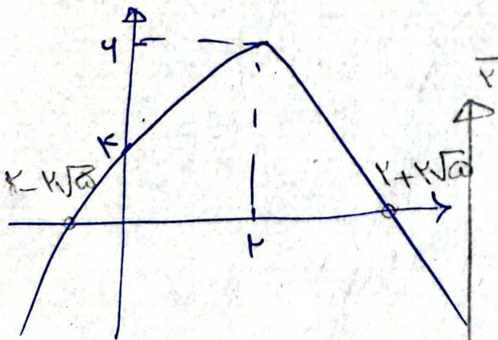
$-16 + 4(m)(\frac{m}{2} + 7) = 32m \quad 2m^2 - 4m - 16 = 0$

$\Delta = 16 + 128 = 144 \quad m_1, m_2 = \begin{cases} m = \\ m = - \end{cases}$

max دارد $\rightarrow a < 0 \quad \boxed{m = -2}$

$f(x) = -2x^2 + 4x + 6 \quad \Delta = 64 \quad \frac{-4 \pm \sqrt{64}}{-4} \begin{cases} x_1 = 3 \\ x_2 = -1 \end{cases}$

(4)



$\frac{1}{2-2\sqrt{5}} + \frac{1}{2+2\sqrt{5}} = \frac{4}{-16} = -\frac{1}{4}$

$c = 4 \quad -\frac{b}{2a} = 2 \quad -b = 4a \quad -b = 4a$

$b = -4a$

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

$-\frac{\Delta}{4a} = 6 \quad -\frac{b^2 - 4ac}{4a} = 6$

$-b^2 + 4ac = 24a \quad -16a^2 + 16a - 24a = 0$

$-16a^2 - 8a = 0$

$a(-16a - 8) = 0 \begin{cases} a = 0 \; ✗ \\ a = -\frac{1}{2} \; ✓ \end{cases}$

$-\frac{1}{2}x^2 + 2x + 4 = 0 \quad -x^2 + 4x + 16 = 0$

$\Delta = 16 + 64 = 80 \quad \frac{-4 \pm \sqrt{80}}{-2} = \begin{cases} x_1 = 2 + 2\sqrt{5} \\ x_2 = 2 - 2\sqrt{5} \end{cases}$

صفحه بعد ←

نوشتن اردیبهشت یازدهمین B

(10)

$$x^2-(4a+4)x+(3a^2+4a+3)$$

$x=2$

$$4-2(4a+4)+3a^2+4a+3=0$$

$$3a^2-4a-1=0$$

$$\Delta=b^2-4ac=4-(-1)(4)(3)=16$$

$$a=\frac{+2\pm4}{4}\begin{cases}1 & \Delta>0\\ -\frac{1}{3} & \Delta>0\end{cases}$$

$\Delta>0$

$$(4a+4)^2-4(3a^2+4a+3)$$

$$a^2+4a+1>0$$

$$\Delta=4-$$

if $a=1$ $\quad \frac{x_1}{2}+\frac{x_2}{4}=1$

if $=a=-\frac{1}{3}$ $\quad \frac{x_1}{2}+\frac{x_2}{\frac{2}{3}}=\frac{-\frac{4}{3}+4}{1}=\frac{1}{3}$