آیناز فرهنگ

۱۷/۷۵

۱) $y=(a-1)x^2+x+2 \longrightarrow \left(\frac{3}{4}-1\right)x^2+x+2$

$\frac{-1}{2a-2}=2 \rightarrow 4a-4=-1$

$4a=3$

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

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

$-x^2+4x+12$

$y=x^2-4x-12 \rightarrow (x+2)(x-6)$

$-2\times$ ۱۷ ✓

۲) بین ۱ و ۲ مثبت است ⟸ $m<0$ ✓

$\Delta>0$ /

$\Delta=2a-4(m)(m)=2a-4m^2>0$

$2a>4m^2$

$\frac{2a}{4}>m^2 \rightarrow -\frac{a}{2}<m<\frac{a}{2}$ (2)

$1/2=\left(-\frac{a}{2},0\right)$

۳) $S=\frac{2-\sqrt{a}+2+\sqrt{a}}{2}=2$ ✓ $\quad P=\frac{9-a}{9}=\frac{4}{9}$

$\Rightarrow y=x^2-2x+\frac{4}{9} \rightarrow 9x^2-18x+4$

۴)

$2\alpha^2+2\beta^2+\alpha^2-\beta^2$

$2(\alpha^2+\beta^2)+(\alpha-\beta)(\alpha+\beta)=12$

$2(16-2m-4)+(4)\left(\frac{\sqrt{64-8m-16}}{2}\right)=12 \rightarrow 24-4m+\sqrt{48-8m}=12$

$2\sqrt{48-8m}=-12+4m \rightarrow 192-32m=24+16m^2-96m$

$16m^2-64m+96=0 \rightarrow m^2-8m+12=0 \Rightarrow (m-6)^2=0 \quad m=6$ ✓

۵

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

ax^2+bx+c — راس سهمی است بین دو ریشه یا بالای محور طول‌ها

$x=2 \rightarrow 4a+2b+c=9 \quad -b+2b+c=9$

$b+c=9 \rightarrow b=4$

$a=-1$

$y = (a)x^2+(x+c)$

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

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

$x=5 \quad x=-1$

$\Longrightarrow (-1,5)$

۶

$\frac{1}{\alpha}+\frac{1}{\beta} = \frac{S}{P} = \frac{\alpha+\beta}{\alpha\beta} = \frac{\frac{V}{9}}{\frac{9\beta}{\alpha}} = \frac{V}{9\beta} = \frac{\alpha+\beta}{\alpha\beta} \rightarrow 9\alpha\beta+9\beta^2 = V\alpha\beta$

$9\beta^2 = -2\alpha\beta$

$9\beta = -2\alpha$

۷

$\beta>0 \rightarrow \alpha<0 \rightarrow \alpha=-2 \quad \beta = \frac{5}{9} = \frac{2}{3}$

if $x=\alpha = \alpha^2-V\alpha-2\alpha = \alpha^2-9\alpha = \alpha(\alpha^2-9).\alpha =$ ✗ ✓ ✓

$\frac{V}{\frac{\alpha}{2}} = \frac{V}{-2(-2)} = \frac{V}{9}$

۱۰

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

$-m\alpha+2m-m\beta=8 \rightarrow -m(\alpha+\beta)+2m=8$

$-m(-m)+2m=8$

$m^2+2m-8=0$

$(m+4)(m-2) \rightarrow m=-4 \text{ ✗}, \quad m=2 \text{ ✓}$

۱۱، ۱۲

$x^2+4x+8=0 \quad \Delta = 16-4(1)(8) \rightarrow \Delta<0$ ✗

$\Delta>0 \rightarrow x^2-2x-4 \rightarrow \Delta = 4-4(1)(-4) \rightarrow \Delta>0$ ✓

$S=-m=-2$

۸

$\frac{-4}{2m} = 8 \Rightarrow 16m=-4 \quad m=-\frac{1}{4}$

$\rightarrow f(x) = -\frac{1}{4}x^2+4x-\frac{1}{8}+7$

$x^2-16x+\frac{1}{2}-28$

$x^2-16x-\frac{55}{2} \rightarrow f(x) = 2x^2-16x-55$

۹

$\frac{-\Delta}{4a} = 8 \rightarrow 2m^2-4m-16=0$

$m = 4, -2$ ✗ ✓

$f(m) = -2m^2+4m+4$

$m=-1, 3$ ✓

(9)

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

$ax^2 + bx + c \to 4a + 2b + c = 9$

$-b + 2b + c = 9 \to b + c = 9 \to \boxed{b = 2}$

$a = -\frac{1}{2}$

$y = -\frac{1}{2}x^2 + 2x + 4 \to x^2 - 4x - 8 \to \frac{1}{\alpha} + \frac{1}{\beta} = \frac{S}{P} = \frac{4}{-8} = \boxed{-\frac{1}{2}}$

5

(10)

if $x = 2 \to 4 - 8a - 8 + 2a^2 + 4a + 2 = 0$

$2a^2 - 4a + 10 = 0 \Rightarrow a^2 - 2a + 5$

$(a-2)(2a+1)$ → (1)

$(a-1)(2a+1)$ → $-\frac{1}{2}$

$a = 1 \quad x^2 - 8x + 12 \to (x-2)(x-6) = 0 \leftarrow 6$

5

$a = \frac{1}{2} \quad x^2 - \frac{8}{2}x + \frac{4}{2} \to 2x^2 - 8x + 4 = 0$

$x - \frac{2}{2}$

$\searrow 2$ $\longrightarrow$ $\underline{2, 4, \frac{1}{2}}$