نام و نام خانوادگی ...علی جمالی... پاسخنامه تشریحی تکلیف شماره ...۱۲... کلاس ...یازدهم ریاضی A...

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**۱**

$$\frac{-b}{2a} = 2 \Rightarrow \frac{-1}{2(a-1)} = 2 \Rightarrow -1 = 4a-4 \Rightarrow a = \frac{3}{4}$$

$$-\frac{1}{4}x^2 + x + 3 = 0 \Rightarrow x = \frac{-1 \pm \sqrt{1-4(-\frac{1}{4})(3)}}{-\frac{1}{2}} = \frac{-1 \pm \sqrt{1+3}}{-\frac{1}{2}} = \frac{-1 \pm 2}{-\frac{1}{2}} \to \frac{1}{-\frac{1}{2}} = \boxed{-2}, \quad \frac{-3}{-\frac{1}{2}} = \boxed{6}$$

$$x > 0 \Rightarrow \boxed{x = 6}$$

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**۲**

$m < 0 \quad \text{I}$

$$\Delta > 0 \Rightarrow 25 - 4m^2 > 0 \Rightarrow \left(\frac{5}{2}\right)^2 > m^2 \Rightarrow m \in \left(-\frac{5}{2}, \frac{5}{2}\right) \quad \text{II}$$

$$\text{I} \cap \text{II} \Rightarrow m \in \boxed{\left(-\frac{5}{2}, 0\right)}$$

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**۳**

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

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

$$x^2 - Sx + P = \boxed{x^2 - 2x + \frac{4}{9}}$$

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**۴**

$$3\alpha^2 + \beta^2 = 12 \Rightarrow 2(\alpha^2+\beta^2) + (\alpha^2-\beta^2) = 12 \xRightarrow{\alpha<\beta} 2(S^2-2P) + \left(-\frac{S\sqrt{\Delta}}{|a|}\right) = 12$$

$S = \frac{-(-8)}{2} = \boxed{4}$ $\quad \Delta = 64 - 4(2)(m+2)$

$P = \boxed{\frac{m+2}{2}}$ $\quad a = 2$

$$\Rightarrow 2(16-m-2) - \frac{4\left(\sqrt{64-8(m+2)}\right)}{2} = 12 \Rightarrow 2(14-m) - 2\times2\sqrt{16-2(m+2)} = 12$$

$$28 - 2m - 4\sqrt{16-4-2m} = 12 \Rightarrow 16 = 2m + 4\sqrt{12-2m}$$

$$\Rightarrow 8 = m + 2\sqrt{12-2m} \Rightarrow (8-m)^2 = 4(12-2m) \Rightarrow m^2 - 16m + 64 = 48 - 8m \Rightarrow m^2 - 8m + 16 = 0$$

$$\Rightarrow (m-4)^2 = 0 \Rightarrow \boxed{m = 4}$$

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**۵**

$y = k(x-2)^2 + 9$ (براساس رأس سهمی)

$$x = 0 \Rightarrow 4k + 9 = 5 \Rightarrow k = -1$$

$$\Rightarrow y = -(x^2-4x+4)+9 = -x^2+4x+5 = -(x-5)(x+1)$$

| $x$ | | $-1$ | | $5$ | |
|---|---|---|---|---|---|
| | $-$ | $0$ | $+$ | $0$ | $-$ |

$y > 0 \Rightarrow x \in (-1, 5)$

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\beta+\alpha}{\alpha\beta}=\frac{S}{P}$ ; $S=\frac{7}{\alpha}$ , $P=\frac{9\beta}{\alpha}$ $\Big\}$ $\frac{1}{\alpha}+\frac{1}{\beta}=\frac{S}{P}=\frac{\frac{7}{\alpha}}{\frac{9\beta}{\alpha}}=\frac{7}{9}\frac{1}{\beta}$ 6

$\Rightarrow \frac{1}{\alpha}=\frac{-2}{9}\frac{1}{\beta} \Rightarrow \beta=\frac{-2\alpha}{9}$

$\Rightarrow P=\frac{9\beta}{\alpha}=9\beta\left(-\frac{2}{9}\right)\left(\frac{1}{\beta}\right)=-2$ $\qquad \frac{S}{P}=\frac{\frac{7}{-3}}{-2}=\boxed{\frac{7}{6}}$

$\Rightarrow S=\alpha+\beta=\alpha-\frac{2\alpha}{9}=\frac{7}{\alpha} \Rightarrow \frac{7\alpha}{9}=\frac{7}{\alpha} \Rightarrow \alpha^2=9 \Rightarrow \alpha=\pm 3$ , $\beta=\frac{-2\alpha}{9}>0$ $\Big\} \Rightarrow \alpha=-3 \Rightarrow S=\frac{7}{-3}$

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$\alpha^2-m\beta=2m-m\alpha-m\beta=8 \Rightarrow 2m-mS=8$ 7

$S=-m \rightarrow m^2+2m-8=0 \Rightarrow (m+4)(m-2)=0 \Rightarrow m=-4, 2$

اگر $m=-4 \rightarrow x^2-4x+8=0 \quad \Delta<0$

$\Rightarrow m=2 \rightarrow S=-m=\boxed{-2}$

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$f(x)=mx^2+4x+\frac{m}{2}+7 \qquad \Delta=16-4(m)\left(\frac{m}{2}+7\right)=16-2m^2-28m$ 8

$\max f=\frac{-\Delta}{4a}=\frac{2m^2+28m-16}{4m}=8 \Rightarrow 2m^2-4m-16=0 \Rightarrow m^2-2m-8=0$

$(m-4)(m+2)=0 \Rightarrow m=4, -2$ ; $m<0$ $\Big\} \Rightarrow \boxed{m=-2}$

$f(x)=-2x^2+4x+6=-2(x^2-2x-3)=-2(x-3)(x+1)$ $\Big\} \Rightarrow \boxed{K=3}$

K ریشهٔ بزرگ‌تر تابع است

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$f(x)=k(x-2)^2+6$ , $f(0)=4$ $\Big\} \Rightarrow 4k+6=4 \Rightarrow k=\frac{-1}{2}$ 9

$f(x)=\frac{-1}{2}(x^2-4x+4)+6=-\frac{1}{2}x^2+2x+4 \qquad S=4 \qquad P=-8$

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{4}{-8}=\boxed{-\frac{1}{2}}$

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$x=2 \Rightarrow 4-2(4a+4)+3a^2+6a+3=0$ , $a+1=t$ $\Big\} \Rightarrow 4-8t+3t^2=0$ 10

$t=\frac{8\pm\sqrt{64-48}}{6}=\frac{8\pm 4}{6}=2, \frac{2}{3} \Rightarrow$

$f(x)=x^2-8x+12 \Rightarrow \frac{c}{a}=12$ , $x_1=2$ $\Big\} \Rightarrow \boxed{x_2=6}$

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$x^2-\frac{8}{3}x+\frac{4}{3} \Rightarrow \frac{c}{a}=\frac{4}{3}$ , $x_1=2$ $\Big\} \Rightarrow \boxed{x_2=\frac{2}{3}}$