روژین عزیزیان   دهم ریاضی B   تکلیف شماره 22

۱۹٫۵ آفرین

۱- $x^2-5x+2=0$ $\quad S=\frac{-b}{a}=5$ $\quad P=\frac{c}{a}=2$ $\quad \alpha\beta=2 \Rightarrow \alpha=\frac{2}{\beta}$ و $\beta=\frac{2}{\alpha}$

$\frac{4\alpha+\beta^5}{5\beta^2}=\frac{4\times\frac{2}{\beta}+\beta^5}{5\beta^2}=\frac{4\alpha}{\frac{5\times4}{\alpha^2}}+\frac{\beta^3}{5}=\frac{\alpha^3+\beta^3}{5}$ ✓ ۲

$\frac{(\alpha+\beta)^3-3\alpha\beta(\alpha+\beta)}{5}=\frac{125-3\times2\times5}{5}=19$

۲- $\frac{-b}{2a}=\frac{3-1.5}{1\times2}=0.75$ $\quad \frac{-b}{2a}=\frac{1.5}{2}$ $\quad S=\frac{-b}{a}=\frac{1.5}{2}\times2=1.5$ ✓ ۲

۳- $|\alpha-\beta|=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{4k^2-20}}{a=1}=\frac{4k}{3}$ $\quad 3\sqrt{4k^2-20}=4k \Rightarrow 3\sqrt{k^2-5}=2k$ (توان ۲)

$9k^2-45=4k^2 \Rightarrow 5k^2=45 \Rightarrow k^2=9$ $\quad [\frac{k^2}{2}]=[\frac{9}{2}]=[4.5]=4$ ۲

۴- $\frac{-b}{2a}=\frac{3-5}{2} \Rightarrow \frac{-b}{a}=-2=S$ $\quad S(-1,1)$ $\quad \alpha^2+\beta^2=S^2-2P=4-2P=5 \Rightarrow P=\frac{-1}{2}$ ۲

$y=a(x^2-Sx+P)=a(x^2+2x-\frac{1}{2})$ $\quad x=-1 \Rightarrow a(1-2-\frac{1}{2})=1 \Rightarrow a=\frac{-2}{3} \Rightarrow y=\frac{-2}{3}(x^2+2x-\frac{1}{2})$

$x=0 \Rightarrow y=\frac{-2}{3}(0+0-\frac{1}{2})=\frac{1}{3} \Rightarrow c=\frac{1}{3}$ ✓

۵- $-x^2+5x+m=0$ $\quad S<9$ $\quad P>0 \Rightarrow -m>0 \Rightarrow m<0 \Rightarrow \Delta>0$ ۱٫۵

$25+4m>0$ $\quad m>\frac{-25}{4}$

$P<\frac{81}{4} \Rightarrow -m<\frac{81}{4}$ $\quad m>\frac{-81}{4}$ $\quad \Big\}\ \frac{-25}{4}<m<0 \Rightarrow [-9,-1]$

۶- $y_{Max}=2$ $\quad m>0 \Rightarrow \frac{-\Delta}{4a}=2 \Rightarrow \frac{-144+20m^2-4m}{4m}=\frac{5m^2-m-36}{m}=2 \Rightarrow$

$5m^2-3m-36=0$ $\quad (5m+12)(m-3)=0 \Rightarrow m=\frac{-12}{5}$ ✗ و $m=3$ ✓

$y=mx^2-12x+5m-1 \Rightarrow y=3x^2-12x+15-1=3x^2-12x+14$ ۲

$\frac{-b}{2a}=\frac{12}{2\times3}=2 \Rightarrow x=2$ ✓

Parsian

۷-

$\underbrace{\alpha , a}_{\times q} \underbrace{, \beta}_{\times q}$ $a^2 = \alpha\beta = P$ $\alpha\beta = 2a-1 = a^2$ $a^2-2a+1=0$

$(a-1)^2=0 \Rightarrow a=1$

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۸-

$x^4-7x^2-5=0 \Rightarrow t^2-7t-5=0$

$t_1,t_2=\frac{7\pm\sqrt{69}}{2} \Rightarrow \frac{7+\sqrt{69}}{2}$, $\frac{7-\sqrt{69}}{2}<0$ غ ق ق

$t=x^2=\frac{7+\sqrt{69}}{2} \Rightarrow x^2-\frac{7+\sqrt{69}}{2}=0 \Rightarrow S=0 \Rightarrow P=\frac{-(7+\sqrt{69})}{2}$

$2P^2-3SP+2S=\frac{2(7+\sqrt{69})^2}{4}-0+0=\frac{49+69+14\sqrt{69}}{2}=59+7\sqrt{69}$

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۹-

$y=kx^2-4x-9 \Rightarrow S=\frac{-b}{2a} , \frac{-\Delta}{4a} \Rightarrow S=\frac{2}{k} , \frac{-(16+36k)}{4k} \Rightarrow S=\frac{2}{k} , \frac{-4-9k}{k}$

$-4\left(\frac{2}{k}\right)-4=\frac{-4+9k}{k} \Rightarrow \frac{-8-4k}{k}=\frac{-4-9k}{k} \Rightarrow \frac{-4+2k}{k}=0 \Rightarrow 2k-4=0 \Rightarrow k=2$

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$\frac{-4-9k}{k}=\frac{-4-12}{2}=-8$

۱۰-

$\left.\begin{array}{l} y=-mx^2+mx+1 \\ y=-m-x \end{array}\right\} -mx^2+mx+1=-m-x \Rightarrow -mx^2+mx+1+m+x \Rightarrow$

$mx^2+x(-m-1)-(m+1)=0 \Rightarrow \Delta<0$

۲

$\begin{cases} (m+1)^2+4m(m+1)<0 \\ (m+1)(m+1+4m)<0 \end{cases} \Rightarrow (m+1)(5m+1)<0$

$\begin{array}{ccccc} & -1 & & -\frac{1}{5} & \\ + & & - & & + \end{array} \Rightarrow m\in\left(-1,-\frac{1}{5}\right)$

۵

$x=\frac{-5\pm\sqrt{25-4(-1)(m)}}{-2}<\frac{9}{2} \Rightarrow \pm\sqrt{25+4m}<4$

$0\le 25+4m<16 \Rightarrow -25\le 4m<-9 \Rightarrow -\frac{25}{4}\le m<-\frac{9}{4} \Rightarrow m\in\{-6,-5,-4,-3\}$

۴ عدد صحیح

چون عبارت زیر رادیکال است باید نامنفی باشد!