پاسخ تشریحی دهم رشته B

(1)

$-\frac{b}{2a}=-1 \Rightarrow b=2a \;\Big|\; x=-1 \Rightarrow a-\overbrace{b}^{2a}+c=9 \Rightarrow -a+c=9 \;\Big|\; x=3 \Rightarrow 9a+\underbrace{3b}_{6a}+\underbrace{c}_{9+a}=1$

$16a=-8$

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

$\boxed{y=-\frac{1}{2}x^2-x+\frac{17}{2}}$

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(2)

$y=2x^2+mx+m+6=0 \longrightarrow$ دو ریشه دارد $\Rightarrow m^2-4(2m+12)>0 \Rightarrow m^2-8m-48>0$

$\Rightarrow (m+4)(m-12)>0 \Rightarrow$ $\begin{array}{c|c|c} -4 & & 12 \\ + & - & + \end{array}$

$\Rightarrow m\in(-\infty,-4)\cup(12,+\infty)$ I , $S=-\frac{m}{2}>0$, III $\frac{m+6}{2}>0 \Rightarrow m>-6 \xrightarrow[1,2,3]{\cap} \underline{-6<m<-4}$

$m<0$ II

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(3)

$3x^2+(2m-1)x+2-m=0 \Longrightarrow$ دو ریشه $\Rightarrow 4m^2+1-4m-4(6-3m)>0 \Rightarrow 4m^2+8m-23>0$

$m=\frac{-8\pm\sqrt{64-4(-92)}}{8}$, $\frac{-2\pm\sqrt{27}}{2}$

I $m\in\left(-\infty,-1-\frac{\sqrt{27}}{2}\right)\cup\left(-1+\frac{\sqrt{27}}{2},+\infty\right)$ $\begin{array}{c|c|c} -1-\frac{\sqrt{27}}{2} & & -1+\frac{\sqrt{27}}{2} \\ \underbrace{+}_{\text{جواب}} & - & \underbrace{+}_{\text{جواب}} \end{array}$

II $\alpha+\beta=\frac{1}{\alpha\beta} \Longrightarrow \frac{-2m+1}{3}=\frac{1}{\frac{2-m}{3}} \Rightarrow 2m^2-5m-7=0 \Rightarrow (2m-7)(m+1)=0 \Rightarrow m\begin{cases}-1\\ \frac{7}{2}\end{cases} \xrightarrow[1,2]{\cap} \underline{\frac{7}{2}=m}$

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(4)

$x^2-x-4=0 \Rightarrow S=1, P=-4 \;\Big|\; x_2^3+x_1^3+\frac{1}{x_2}+\frac{1}{x_1}=(x_1+x_2)^3-3(-4)(x_1+x_2)+\frac{x_1+x_2}{x_1x_2}$

$1+12-\frac{1}{4}=\frac{51}{4}=S$

$\left(x_2^3+\frac{1}{x_1}\right)\left(x_1^3+\frac{1}{x_2}\right)=(\overbrace{x_1x_2}^{-4})^3+\underbrace{x_2^2+x_1^2}_{1-2(-4)=9}+\underbrace{\frac{1}{x_1x_2}}_{-4}$

$=-64+9-\frac{1}{4}=-\frac{231}{4}$ $\quad y=x^2-\frac{51}{4}x-\frac{231}{4}$

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(5)

$\sqrt[3]{x^2}=t \Rightarrow \left(t+\frac{1}{t}+1\right)(t-1)=t^2-\frac{1}{t} \Rightarrow \sqrt[3]{x^4}-\frac{1}{\sqrt[3]{x^2}}=2\sqrt[3]{x} \Rightarrow \frac{\sqrt[3]{x^6}-1}{\sqrt[3]{x^2}}=2\sqrt[3]{x}$

$\Rightarrow x^2-1=2x$

$x^2\underbrace{-2}_{-S}x-1=0 \quad \boxed{S=2}$

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(6)

$3x^2-\alpha x+4=0$, $\overset{*}{\alpha}=3\beta \Rightarrow P=\frac{4}{3} \Rightarrow 3\beta^2=\frac{4}{3} \Rightarrow \beta^2=\frac{4}{9} \Rightarrow \beta\begin{cases}\frac{2}{3}\\ -\frac{2}{3}\end{cases}$

$\Rightarrow S\begin{cases}\frac{8}{3}=\frac{\alpha}{3}\longrightarrow \boxed{\alpha=8}\\ -\frac{8}{3}=\frac{\alpha}{3}\longrightarrow \boxed{\alpha=-8}\end{cases}$ $\quad 8-(-8)=\boxed{16}$ $\quad \overset{*}{\Longrightarrow}\alpha\begin{cases}2\\-2\end{cases}$

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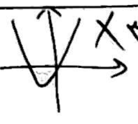
(7)

$y=ax^2+(3+2a)x \Rightarrow$ (1) $a>0$; (2)  X دارای ۳ ناحیه 

۱ ریشه
مضاعف
صفر و + ۲ ریشه

$\Delta\geq 0 \Rightarrow 9+4a^2+12a\geq 0$

$\Rightarrow (2a+3)^2\geq 0$

(3) $a\neq -\frac{3}{2}$

(4) $S\geq 0 \longrightarrow \frac{-3+(-2a)}{a}\geq 0 \Rightarrow -\frac{3}{2}>a \longrightarrow$ (1), (2), (3) اشتراک $\varnothing$

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$$y=-x^2-2x+b\ ,\ y=x^2+ax-2 \Rightarrow \frac{-b}{2a}=\frac{2}{-2}=\frac{-a}{2}\Rightarrow a=2$$

$$\begin{cases} 1=\cancel{-x^2}\cancel{-2x}+b \\ + \\ 1=\cancel{x^2}+\cancel{2x}-2 \end{cases}$$

$$2=-2+b \Rightarrow b=4$$

$$ab=2\times 4=8$$

9

$$2ax^2+ax-6=0 \Rightarrow S=\frac{-a}{2a}=\frac{-1}{2}\ ,\ P=\frac{-6}{2}=-3 \Big\}\ 2x^2-ax+b=0$$

$$\Rightarrow S=\alpha+\frac{1}{2}+\beta+\frac{1}{2}=\frac{-1}{2}+\frac{1}{2}+\frac{1}{2}=\frac{-(-a)}{2}\Rightarrow \underline{\underline{a=1}}$$

$$P=\left(\alpha+\frac{1}{2}\right)\left(\beta+\frac{1}{2}\right)=\alpha\beta+\frac{1}{2}(\alpha+\beta)+\frac{1}{4}=\frac{+b}{2}\Rightarrow -3+\frac{1}{2}\left(\frac{-1}{2}\right)+\frac{1}{4}=\frac{+b}{2}\Rightarrow b=-6$$

$$ab=-6\times 1=-6$$

$$\Rightarrow \left[\frac{\overbrace{ab}^{-6}}{4}\right]=\left[\frac{-6}{4}\right]=-2$$

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$$x^2+6x+1=0 \Rightarrow S=-6 \Rightarrow \alpha=-6-\beta \ \text{(1)} \Big\}\ x^2+2x-4=0$$

$$S=-2 \Rightarrow \alpha=-2-\gamma \ \text{(2)} \Big\}\ (1),(2) \Rightarrow -6-\beta=-2-\gamma$$

$$\boxed{\gamma-\beta=4}$$