B دهم ادغتر

سری ۲۳

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۲۰ آفرین

Subject:

Year: Month: Day: page: ( )

۱. $y=ax^2+bx+c \rightarrow y=a(x-h)^2+9 \Rightarrow 1=a(3+1)^2+9$

$x_s=-1$ $x-h=0 \rightarrow x=h \rightarrow h=-1$

$y_s=9$ $\Rightarrow \boxed{y=-\frac{1}{2}(x+1)^2+9}$ $16a+9=1$

$16a=-8$

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

۲. $2x^2+mx+m+6=0$

⊕⊕ → ۲ ✓ ⊖⊖ → ۱ $\Delta>0 \rightarrow b^2-4ac=m^2-4(m+6)(2)=m^2-8m-48$

⊕⊖ → ۱ ⊕ → ۱

⊖⊖ → ۰ ⊖ → ۰ $(m-12)(m+4)>0 \leftarrow m^2-8m-48>0$

⊕⊕ → ۲ $\frac{-b}{a}>0 \rightarrow \frac{-m}{2}>0 \rightarrow m<0$ ①

-4 12 ② $\frac{c}{a}>0 \rightarrow \frac{m+6}{2}>0 \rightarrow m+6>0 \rightarrow m>-6$ ③

| + | − | + |

$m>12 , m<-4$ ① ①∩②∩③∩④ $\Rightarrow \boxed{-6<m<-4}$

۳. $3x^2+(2m-1)x+2m=0$

$\Delta>0 \rightarrow (2m-1)^2-4(2m)(3)=4m^2-4m+1-24+12m=4m^2+8m-23>0$

$\frac{-b}{a}=\frac{a}{c} \rightarrow \frac{+1-2m}{3}=\frac{3}{2m} \Rightarrow 9=2-4m-m+2m^2 \rightarrow 2m^2-5m-7=0$

(۱ چون در رابطه بالا در دلتا صدق نمیکند) m ← -1 × غیرقابل قبول ، $+\frac{7}{2}$ ✓

$\boxed{m=\frac{7}{2}}$ ولی $\frac{7}{2}$ برقرار است

۴. $x=x^2-4 \rightarrow x^2-x-4=0$

$\frac{-b}{a}=\frac{+1}{1}=1$ $\frac{c}{a}=\frac{-4}{1}=-4$

$\frac{-b}{a}=x_2^3+\frac{1}{x_1}+x_1^3+\frac{1}{x_2}=(x_1+x_2)^3-3x_1x_2(x_1+x_2)+\frac{x_2+x_1}{x_1x_2}=1^3+12-\frac{1}{4}=\boxed{12{,}75}$

$\frac{c}{a}=x_1^3x_2^3+x_2^2+x_1^2+\frac{1}{x_1x_2}=(-4)^3+(x_1+x_2)^2-2x_1x_2+\frac{1}{-4}=-64+1+8-\frac{1}{4}=$

فرض $a=1$ $-55-\frac{1}{4}=\boxed{-55{,}25}$

$\boxed{y=x^2-12{,}75x-55{,}25}$

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

$(t^2+\frac{1}{t^2}+1)(t^2-1)=2t \Rightarrow t^4+1+t^2-t^2-\frac{1}{t^2}-1=t^4-\frac{1}{t^2}=2t$

$t^6-1=2t^3 \rightarrow t^6-2t^3-1=0 \rightarrow x^2-2x-1=0$

x ← $1+\sqrt{2}$ ، $1-\sqrt{2}$

$1+\sqrt{2}+1-\sqrt{2}=②$

ریشه‌ها $x_1 , 3x_1 = x_2$

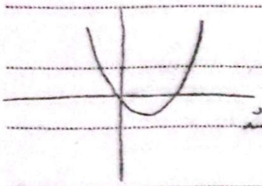
6.
$3x^2 - ax + 4 = 0$

$\frac{-b}{a} = \frac{+a}{3} \to 3x_1 + x_1 = 4x_1 = \frac{a}{3} \to x_1 = \frac{a}{12}$

$\frac{c}{a} = \frac{4}{3} \to x_1 \times 3x_1 = 3x_1^2 = \frac{4}{3} \to 3(\frac{a}{12})^2 = \frac{4}{3} \to 3 \times \frac{a^2}{144} = \frac{4}{3} \to a^2 = 64 \to a = \pm 8$

$|8 - (-8)| = 16$

7.
$y = ax^2 + (3 + 2a)x$ $\quad \frac{-b}{a} \geq 0 \Rightarrow \frac{-3-2a}{a} \geq 0$ $\quad (\to \frac{-3}{2}, \ 0)$



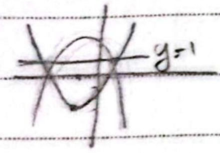
$c = 0$ عبور از مبدأ

باید رو به بالا باشد $\boxed{a > 0}$ ①

$-\frac{3}{2} \quad 0$: $- \quad + \quad -$ $\Rightarrow \boxed{-\frac{3}{2} \leq a < 0}$ ②

$① \cap ② = \emptyset$

8.
$y = x^2 + ax - 2$
$y = -x^2 - 2x + b$
$\Big\{ \frac{-b}{2a} = \frac{-a}{2} = \frac{+2}{-2} \Rightarrow \frac{-a}{2} = -1 \to -a = -2 \to a = 2$



$(1,1) , (-3,1)$ $\quad \Rightarrow 1 = -9 + 6 + b \Rightarrow 4 = b$

$ab = 2 \times 4 = 8$

9.
$2x^2 - ax + b = 0 \to \frac{-b}{a} = \frac{+a}{2} = \frac{-a+2a}{2a} \Rightarrow \frac{a}{2} = \frac{a}{2a} \to \frac{a}{2} = \frac{1}{2}$

$2ax^2 + ax - 6 = 0 \to \frac{-b}{a} = \frac{-a}{2a}$ $\quad \boxed{a = 1}$

$\downarrow$ $2x^2 + x - 6 = 0$

$x^2 + x - 12 = 0 \to (x-3)(x+4) = 0$ $\quad x < \frac{3}{2}, -2$

ریشه‌های معادله اول $\to 2 , \frac{-3}{2}$

$8 - 2 + b = 0 \to \boxed{b = -6}$ $\quad [\frac{ab}{4}] = [\frac{-6}{4}] = -2$

10.
$x^2 + 6x + m = 0 \to x_1 , x_2$ $\quad \frac{-b}{a} = \frac{-6}{1} = -6 = x_1 + x_2$

$x^2 + 2x - 3m = 0 \to x_1 , x_3$ $\quad \frac{-b}{a} = -2 = x_1 + x_3$

$|x_1 + x_2 - (x_1 + x_3)| = |-6 + 2| \to |x_2 - x_3| = |-4| = 4$