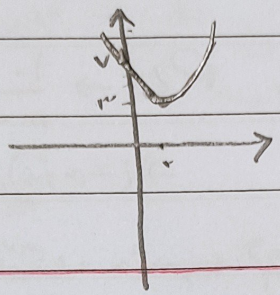
موضوع : (۲۰) تاریخ : / /

حسابان عنده یازدهم دختر تکلیف شماره ۱۲۵

۱) $y = x^2 - 4x + 7$

$x_s = \frac{-b}{2a} = \frac{+4}{2} = +2$

$y_s = 4 - 8 + 7 = +3$

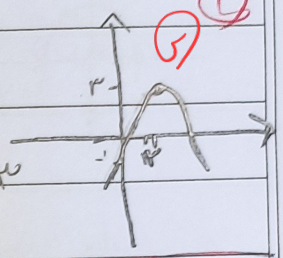


$y = -x^2 + 4x - 1$

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

$y_s = -4 + 8 - 1 = 3$

ج)



۲)

$2x^2 + (m+1)x + \frac{1}{2}m + 2 = 0$

الف) دو ریشه حقیقی

$\Delta > 0 \Rightarrow (m+1)^2 - 4(2)(\frac{1}{4}m + 2) > 0$

$m^2 - 2m - 15 > 0 \rightarrow m = \mathbb{R} - [-3, 5]$

$(m-5)(m+3) > 0$

+ 5 − 3 +

ب) یک ریشه مضاعف

$\Delta = 0 \rightarrow (m+1)^2 - 4(2)(\frac{1}{4}m + 2) = 0$

$m^2 - 2m - 15 = 0 \rightarrow m = -3$ و 5

ج) ریشه حقیقی نداشته باشد.

$\Delta < 0 \rightarrow m^2 - 2m - 15 < 0 \rightarrow m \in (-3, 5)$

د) ریشه داشته باشد.

$\Delta \geq 0 \rightarrow m^2 - 2m - 15 \geq 0 \quad m \in (-\infty, -3] \cup [5, +\infty)$

۳)

$y = (m-2)x^2 - 2(m+1)x + 10$

الف) همواره بالای محور

$\Delta > 0 \rightarrow (2(m+1))^2 - 4(m-2)(10) > 0 \rightarrow m^2 - 8m + 21 > 0$

$S < 0 \rightarrow \frac{2m+2}{m-2} < 0 \rightarrow$ + −1 − 2 + $\quad -1 < m < 2$ (I)

$P > 0 \rightarrow \frac{10}{m-2} > 0 \rightarrow m - 2 > 0 \rightarrow m > 2$ (II) $I \cap II = \emptyset$

ب)

$\Delta > 0$ ✓

$S < 0 \rightarrow -1 < m < 2$ I

$P < 0 \rightarrow m < 2$ (II)

$I \cap II = (-1, 2)$

تاریخ : / /

موضوع :

$y=(m-2)x^2-2(m+1)x+10$

۴)

الف) همواره بالا $\Delta>0 \rightarrow m^2-8m+12>0$

$P<0 \rightarrow \frac{10}{m-2}<0 \rightarrow m-2<0 \rightarrow m<2$

$\Rightarrow (-\infty, 2)$

۵) ب) $\frac{a}{s}=\frac{b}{a} \rightarrow \frac{-2(m+1)}{m-2}=2 \rightarrow -2m+8=2m+2$

$6=4m \rightarrow \boxed{m=1}$

۶) $\frac{2x^2}{3}-(2\sin\alpha)x+\frac{3}{2}=0$

$\Delta \geq 0 \rightarrow 4\sin^2\alpha-4\times\frac{2}{3}\times\frac{3}{2}=4(\sin^2\alpha-1)\geq 0 \rightarrow \sin^2\alpha \geq 1$

$\sin^2\alpha=1 \rightarrow \sin\alpha=\overset{\overline{OD}}{\oplus}1$

$\frac{2}{3}x^2-2\alpha x+\frac{3}{2}=0 \rightarrow 4x^2-12x+9=0$

$(2x-3)^2=0 \rightarrow x=\frac{3}{2}$

۷) $y=\frac{(3x^2-2x-1)(2x^2-3x-5)}{1-x^2}$

$3x^2-2x-1 \mid x-1$, $3x+1$

$-3x^2+3x$

$x-1$

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

$2x^2-3x-5 \mid x+1$, $2x-5$

$-2x^2-2x$

$-5x-5$

$+5x+5$

0

$\frac{(x-1)(3x+1)(x+1)(2x-5)}{-(x+1)(x-1)}$

$x \neq \pm 1$

$-(3x+1)(2x-5)=-(6x^2-13x-5)$

$y_s=\frac{-\Delta}{4a}=\frac{-(169-4(-5))}{24}=\boxed{\frac{289}{24}}$

موضوع :

تاریخ : / /

۷) $\alpha^2+\beta^2 = S^2 - 2P \rightarrow \frac{9}{4}+1 = \frac{13}{4}$

$mx^2-(m+2)x-2=0$

۶) $S = -\frac{b}{a} = \frac{m+2}{m}$ $\quad P = \frac{c}{a} = \frac{-2}{m}$

$3S = 9P+7$

$\rightarrow S = \frac{6+2}{4} = 2 = \frac{8}{4}$ $\quad \rightarrow P = \frac{-2}{4} = -\frac{1}{2}$

$-3\left(\frac{m+2}{m}\right) = \frac{-10}{m} + 7$

$\frac{3m+6}{m} = \frac{-10+7m}{m} \rightarrow 3m+6 = 7m-10 \rightarrow 4m-16=0 \rightarrow m=4$ ۴

۸) $x^2-5x+2=0 \rightarrow \alpha, \beta$

$S=5 \quad P=2$

$\frac{4\alpha+\beta^3}{5\beta^2} \rightarrow \frac{4\alpha}{5\beta^2} + \frac{\beta^3}{5\beta^2}$

$\alpha\beta = 2 \rightarrow \beta = \frac{2}{\alpha} \rightarrow \beta^2 = \frac{4}{\alpha^2}$

۹) $\frac{4\alpha}{\frac{20}{\alpha^2}} + \frac{\beta^3}{5} = \frac{\alpha^3}{5} + \frac{\beta^3}{5} = \frac{1}{5}(\alpha^3+\beta^3) = \frac{1}{5}(S^3-3PS)$

$= \frac{1}{5}(125-30) = 19$

۵) $y = ax^2+bx+c \quad (c=4)$

$y_1 = 2m+10$

$m=2 \quad y_2 = 2\times 2+10 = 14 \rightarrow (2,14)$

$m=-3 \quad y_3 = -3\times 2+10 = 4 \rightarrow (-3,4)$

۴)
$$\begin{cases} 4a+2b=10 \\ 9a-3b=0 \rightarrow 9a=3b \rightarrow a=\frac{1}{3}b \end{cases}$$

$4a+4a=10$

$a=1 \rightarrow b=3$

$x^2+3x+4 \rightarrow x_S = \frac{-b}{2a} = \frac{-3}{2}$

موضوع:

$y = 2ax^2 + (m+1)ax + m + 4 \longrightarrow a = y$ (1)

$a = 2a^2 + (m+1)a + m + 4$ (2)

$2a^2 + ma + m + 4 = 0$

$\Delta = m^2 - 4(2)(m+4) = m^2 - 8m - 32 = 0$

$(m-12)(m+4) = 0$

$x + 12 -$

$y = -4$