

1 A, V 5

A

تکلیف سؤالات 1 و 2

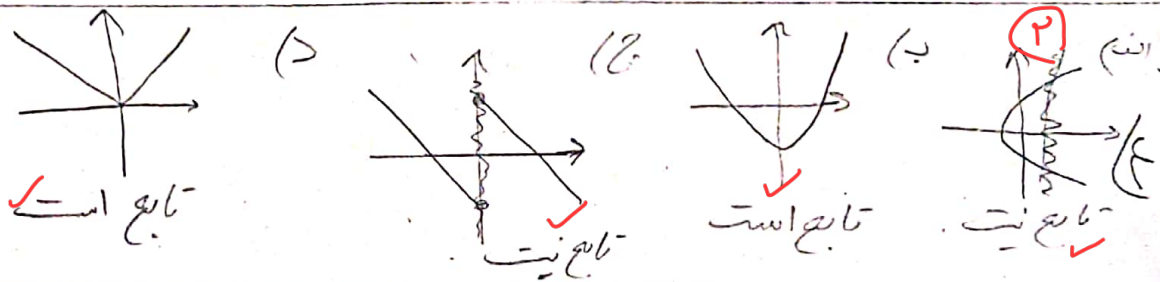
امید طالع

جواب (a, 2x+y), (2x-y, 1) $\rightarrow \begin{cases} x+y = -1 \\ 2x-y = 9 \end{cases} \rightarrow \begin{cases} x = 1 \\ y = -2 \end{cases} \rightarrow \frac{2x}{y} = \frac{-2}{-1} = 2 \checkmark$ (1) 1

ب) $(-1, -2), (\frac{1}{x} - \frac{1}{y}, \frac{5}{x} - \frac{y}{y}) \rightarrow \frac{1}{x} - \frac{1}{y} = -1 \Rightarrow \frac{y-x}{xy} = -1 \Rightarrow y-x = -xy$
 $\frac{2y-2x}{xy} = -2 \Rightarrow 2y-2x = -2xy$
 $\left. \begin{aligned} 2y-2x &= -2xy \\ 2y-2x &= 2xy \end{aligned} \right\} \rightarrow -2xy = 2xy \xrightarrow{x \neq 0} -1 = 1y \Rightarrow y = -1 \checkmark$
 $\frac{2}{y} = \frac{-2}{-1} = 2 \checkmark$ (1) 1

f(a) + 2f(2) = cf(1) $\rightarrow 2a + 2b = 2a - 9 \Rightarrow -4 + 2b = -4 \Rightarrow b = 0 \checkmark$ (2) 2
 $a + 1 = -2 \Rightarrow a = -3$

$m^2 - 1^2 m = -1 \Rightarrow m^2 - m + 1 = 0$
 $\begin{cases} m=1 \rightarrow f(1) = 4 \text{ و } f(1) = 4 \times \\ m=2 \rightarrow f(2) = 4 \text{ و } f(2) = 0 \times \end{cases} \checkmark$ (3) 3



جواب (a) $y = -\sqrt{x+1}$
 $\left. \begin{aligned} y_1 &= -\sqrt{x+1} \\ y_2 &= \sqrt{x+1} \end{aligned} \right\} y_1 = y_2 \checkmark$ تابع است (1) 1

ب) $x = \frac{y}{\sqrt{1-y^2}} \xrightarrow{x=1} y = \sqrt{1-y^2} \Rightarrow y^2 = 1-y^2 \Rightarrow 2y^2 = 1 \Rightarrow y = \pm \frac{1}{\sqrt{2}} \checkmark$ (2) 2

جواب (a) $|y| = x \xrightarrow{x=1} |y| = 1 \Rightarrow y = \pm 1 \checkmark$ تابع نیت (1) 1

ب) $y^2 + 2y^2 + 3y = -(x^2 + x)$
 $\left. \begin{aligned} y_1^2 + 2y_1^2 + 3y_1 &= -(x^2 + x) \\ y_2^2 + 2y_2^2 + 3y_2 &= -(x^2 + x) \end{aligned} \right\} \begin{cases} y_1^2 - y_2^2 + 2y_1^2 - 2y_2^2 + 3y_1 - 3y_2 = 0 \\ y_1^2 + 2y_1^2 + 3y_1 &= -(x^2 + x) \end{cases}$ (2) 2

$(y_1 - y_2)(y_1^2 + y_2^2 + 3y_1 + 3y_2) + 3(y_1 - y_2)(y_1 + y_2) + 3(y_1 - y_2) = 0 \Rightarrow (y_1 - y_2)(y_1^2 + 2y_1^2 + 3y_1 + 3y_2 + 3) = 0$
 $\Rightarrow (y_1 - y_2) \underbrace{(y_1^2 + (y_2 + 3)y_1 + y_2^2 + 3y_2 + 3)}_{\text{دست انداز}} = 0 \rightarrow y_1 = y_2 \checkmark$

$$f(x) = \frac{x^2 + 5x + 0}{x^2 + 5x + 4} = \frac{(x+1)^2 + 1}{(x+1)^2 + 4} \xrightarrow{x=(\sqrt{c}-1)} \frac{(\sqrt{c})^2 + 1}{(\sqrt{c})^2 + 4} = \frac{c}{4} = \frac{1}{c} \quad \checkmark \quad (P) \checkmark$$

$$f(x) = x^c + ax + b \rightarrow -1 - a + b = -5 \Rightarrow b = -4 \quad f(x) = x^c + x - 5 \quad (P) \wedge$$

$$y = 1^c x - a \rightarrow -5 - a = -5 \Rightarrow a = 0 \quad y = 1^c x - 1$$

$$x^c + x - 5 = 1^c x - 1$$

$$x^c - 1^c x - 1 = 0 \Rightarrow (x+1)(x^c - x - 1) = 0$$

$$\checkmark \quad \left| \right| = \frac{1}{1} \leftarrow \frac{-b}{a} \leftarrow b^2, c^2$$

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

$$-a + 1 = 1^c a \Rightarrow a = \frac{1}{2} \quad \checkmark$$

(P) 1

$$\frac{1^c x^c - ax + c + 1}{b^c x + c} = x \Rightarrow 1^c x^c - ax + c + 1 = b^c x^c + cx$$

$$\left\{ \begin{array}{l} b = 1^c \\ a = -1^c \\ c + 1 = 0 \Rightarrow c = -1 \end{array} \right. \quad (P)$$

$$a + b + c = -1 + 1 - 1 = -1 \quad \checkmark$$

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مخرج سردها مثبت اند پس
 y_1 و y_2 هم علامتند!

$$\left. \begin{aligned} n &= \frac{y_1}{\sqrt{1-y_1^2}} \\ n &= \frac{y_2}{\sqrt{1-y_2^2}} \end{aligned} \right\}$$

\Rightarrow

$$\frac{y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{\sqrt{1-y_2^2}}$$

توان ۲
طرفین وسطین

$$y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2$$

$$y_1^2 = y_2^2$$

y_1 و y_2 هم علامتند

$$\boxed{y_1 = y_2}$$

تابع
حست!