

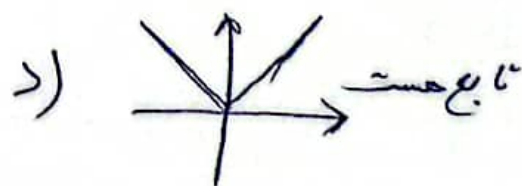
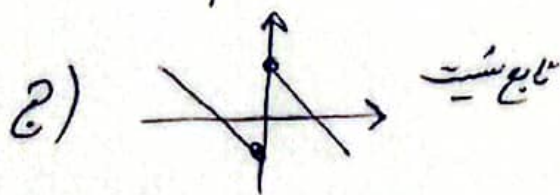
۱) $(9x+2y)$ و $(3x-y, -4) \rightarrow \begin{cases} 9=3x-y \\ -4=x+2y \end{cases} \rightarrow \begin{cases} 18=4x-2y \\ -4=4x+2y \end{cases} \rightarrow \begin{cases} 7x-14 \rightarrow x=2 \\ -2y-4 \rightarrow y=-2 \end{cases}$
 $\rightarrow \frac{x}{y} = \frac{-2}{-3} \rightarrow$ جواب

۲) $(-1, -2)$ و $(\frac{1}{x}, -\frac{1}{y}, \frac{a}{x}, -\frac{a}{y}) \rightarrow \begin{cases} \frac{1}{x} - \frac{1}{y} = -1 \\ \frac{a}{x} - \frac{a}{y} = -3 \end{cases} \rightarrow \begin{cases} -\frac{a}{x} + \frac{a}{y} = a \\ \frac{a}{x} - \frac{a}{y} = -3 \end{cases}$
 $\rightarrow \frac{x}{y} = \frac{-1}{-1} = \frac{1}{1} \rightarrow$ جواب

$F = \{(a, a), (1, a+1), (1, -2), (2, b)\} \rightarrow a+1 = -2 \rightarrow a = -3$
 $a = -3 \rightarrow \{(-3, -3), (1, -2), (1, -1), (2, b)\}$

$F(a) + 2F(2) = 3F(1)$
 $F(-3) + 2F(2) = 3F(1) \rightarrow -9 + 2b = -6 \rightarrow b = 0 \rightarrow$ جواب

$F = \{(-1, m^2-2m), (2, a), (-1, -2), (m+1, 4), (2, 4), (m^2+2, 4m+1)\} \quad m = ?$
 $m^2 - 2m = -2 \rightarrow m^2 - 2m + 2 = 0 \rightarrow (m-1)(m-2) = 0 \rightarrow m = 1$
 $m = 2$ جواب
 $m = 1 \rightarrow \{(-1, -2), (2, a), (-1, -2), (2, 4), (2, 4), (3, 5)\} \rightarrow X$
 $m = 2 \rightarrow \{(-1, -2), (2, 5), (-1, -2), (3, 4), (2, 4), (6, 9)\} \rightarrow X$
 \Rightarrow بد از ای هیچ مقدار



الف) $y = -\sqrt{x+1} \rightarrow$ تابع است ✓

ب) $x = \frac{y}{\sqrt{1-y^2}} \rightarrow$ تابع نیست چون $x \geq 0 \rightarrow y = -1$
 X

الف) $|y| = x \rightarrow$ تابع شیب \rightarrow چون مقدار x و y مقدار \rightarrow تابع شیب \rightarrow $y = \pm 1$ \rightarrow مثال $\rightarrow x=0$ \rightarrow $y = \pm 1$ \times دارند

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ب) $y'' + 3y' + 3y + 2x + 2 = 0 \rightarrow$ تابع است \rightarrow چون اگر درضا برای عبارتی دارای شیبی از y و y' باشد عبارت تابع است \checkmark

$$f(x) = \frac{2x^2 + \varepsilon x + \omega}{2x^2 + \varepsilon x + \nu} \Rightarrow f(\sqrt{3}-2) = ? \Rightarrow$$

$$\frac{(\sqrt{3}-2)^2 + \varepsilon(\sqrt{3}-2) + \omega}{(\sqrt{3}-2)^2 + \varepsilon(\sqrt{3}-2) + \nu} = \frac{3 + \varepsilon - 4\sqrt{3} + \varepsilon\sqrt{3} - 4 + \omega}{3 + \varepsilon - 4\sqrt{3} + \varepsilon\sqrt{3} - 4 + \nu} = \frac{\nu - 3}{\nu - 1} = \frac{\varepsilon}{\varepsilon} = \frac{2}{3}$$

جواب \leftarrow

$f(x) = x^3 + ax + b, y - 3x + a = 0, (-1, -\varepsilon)$

$y = 3x - a \rightarrow -\varepsilon = 3(-1) - a \rightarrow -\varepsilon = -3 - a \rightarrow a = 1 \rightarrow y = 3x - 1$

عبارت $\rightarrow -\varepsilon = (-1)^3 - 1 + b \rightarrow -\varepsilon = -2 + b \rightarrow b = -2 \rightarrow f(x) = x^3 + x - 2$

$x^3 + x - 2 = 3x - 1 \rightarrow x^3 - 2x - 1 = 0 \rightarrow (x+1)(x^2 - 2x - 1) = 0 \rightarrow$ ریشه $\rightarrow x = -1$ و $x = \frac{1 \pm \sqrt{5}}{2}$

$\rightarrow y = 3x - 1 \rightarrow x = \frac{1 + \sqrt{5}}{2}, x_2 = \frac{1 - \sqrt{5}}{2}$

$\frac{1 + \sqrt{5}}{2} + \frac{1 - \sqrt{5}}{2} = \frac{2}{2} = 1 \rightarrow$ جواب

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$f = \left\{ (2, a+b), (1, 2a), (-1, a-2b+1) \right\} \quad a = ?$

$a+b = a-2b+1 \rightarrow 3b = 1 \rightarrow b = \frac{1}{3}$

$a+b = 2a \rightarrow \left\{ \left(2, \frac{2}{3} \right), \left(1, \frac{2}{3} \right), \left(-1, \left(\frac{1}{3} - 2\left(\frac{1}{3} + 1 \right) \right) \right) \right\} \rightarrow a = b$

$\rightarrow a = \frac{1}{3} \rightarrow$ جواب

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$f(x) = \frac{\varepsilon x^2 - ax + c + 1}{bx + 3} \rightarrow$ عکس $\rightarrow f(x) = 2x$

$\rightarrow x = \frac{\varepsilon x^2 - ax + c + 1}{bx + 3} \rightarrow \underline{bx^2 + 3x} = \underline{\varepsilon x^2 - ax + c + 1} \rightarrow b = \varepsilon$

$-ax + c + 1 = 3x \rightarrow a = -3$ و $c = -1$

$a + b + c = -3 + \varepsilon - 1 = 0 \rightarrow$ جواب

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