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حل:

$$2X^2 - 4X + 2 = 0 \xrightarrow{\div(2)} X^2 - 2X + 1 = 0 \rightarrow (X-1)^2 = 0$$

$$\rightarrow X - 1 = 0 \quad X = 1$$

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حل:

$$(AB)^2 = (BC)^2 + (AC)^2$$

$$(2X + 2)^2 = (3X - 4)^2 + 6^2 \rightarrow 5X^2 - 32X + 48 = 0$$

$$\Delta' = 16^2 - 5(48) = 256 - 240 = 16$$

$$X = \frac{+16 \pm \sqrt{16}}{5}$$

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$$X = +4$$

$$X = \frac{12}{5}$$

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حل:

$$A = \begin{bmatrix} -4 \\ b \end{bmatrix}, B = \begin{bmatrix} -1 \\ b \end{bmatrix} \quad X = \frac{X_A + X_B}{2} \rightarrow X = \frac{-4 + (-1)}{2} \rightarrow X = -\frac{5}{2}$$

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حل:

$$p = \frac{X^2 + X}{4 - 9X^2}$$

$$X^2 + X = 0 \rightarrow X = 0, -1$$

$$4 - 9X^2 = 0 \rightarrow X = \pm \frac{2}{3}$$

X	-1	$-\frac{2}{3}$	0	$\frac{2}{3}$					
$X^2 + X$	+	○	-	○	+	+			
$4 - 9X^2$	-	-	○	+	+	○	-		
p	-	○	+		-	○	+		-

$$\frac{x-1}{x^2-4} \leq \frac{2x}{x^2-4} \Rightarrow \leq 0$$

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

$$x^2-4=0 \rightarrow x=\pm 2$$

$$x \in (-2, -1] \cup (2, +\infty)$$

x	$-\infty$	-2	-1	2	$+\infty$		
$-x-1$	+		+	○	-		
x^2-4	+	○	-	-	○	+	
p	+		-	○	+		-

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حل:

$$x \in [-2, 4]$$

$$\frac{-2+4}{2} = 1$$

$$\Rightarrow |x-1| \leq 3$$

$$\frac{4-(-2)}{2} = 3$$

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حل:

$$f = \{(-1, 2n-1), (4, -1), (-1, n+2)\}$$

$$2n-1 = n+2 \rightarrow n=3$$

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حل:

$$g = \{(-1, 2a-b), (a-2, 4)\}$$

$$a-2 = -1 \rightarrow a=1$$

$$2a-b = 4 \rightarrow 2-b = 4 \rightarrow b = -2$$

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حل:

$$f(x) = \frac{x}{x^2+1} \begin{cases} f(-1) = -\frac{1}{2} \\ f(2) = \frac{2}{5} \end{cases}$$

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

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حل:

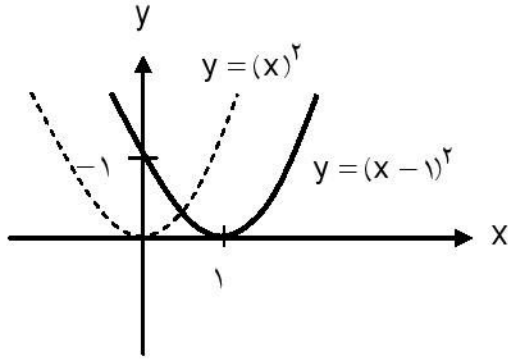
$$f(x) = a^{x+b}$$

$$f(0) = -1 \rightarrow a(0) + b = -1 \rightarrow b = -1$$

$$f(1) = 1 \rightarrow a(1) + b = 1 \rightarrow a + b = 1 \rightarrow a = 2$$

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حل:

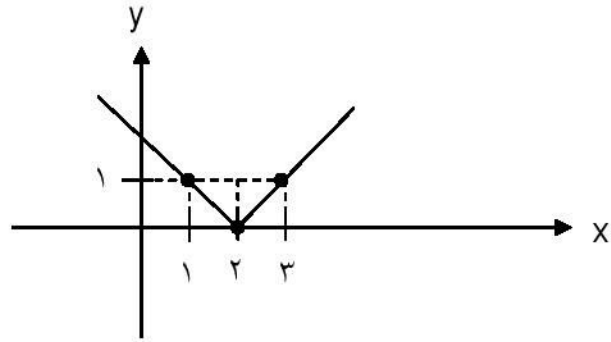
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حل:



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حل:

$$y = |x - 2|$$

x	1	2	3
y	1	0	1



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حل:

$$f(1-2x) = \frac{1}{x+1} \quad : 1-2x = t \rightarrow x = \frac{1-t}{2}$$

$$f(t) = \frac{1}{\frac{1-t}{2} + 1} \rightarrow f(t) = \frac{2}{3-t} \rightarrow f(x) = \frac{2}{3-x}$$

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حل:

$$\begin{cases} 2f(x) + f(-x) = x^2 + x \\ 2f(-x) + f(x) = x^2 - x \end{cases} \Rightarrow \begin{cases} 2f(x) - 2f(-x) = -2x^2 - 2x \\ 2f(-x) + f(x) = x^2 - x \end{cases} +$$

$$\hline -2f(x) = -x^2 - 2x$$

$$\Rightarrow f(x) = \frac{1}{3}x^2 + x$$