

۱۷، ۷۵

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SUBJECT

Year:

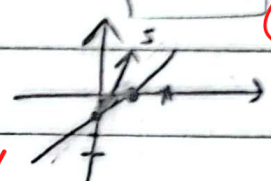
Month:

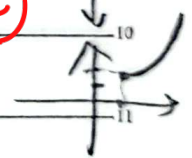
Day:

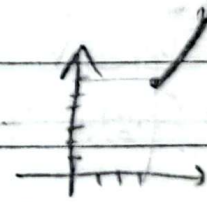
کتابخانه/دفتر (نام و آدرس)

نام و نام خانوادگی

تاریخ

$2y = 3x - 1$ معکوس، $2y - 1 = 3x \rightarrow 2y - 1 = x$ $\frac{2x-1}{3} = y$ (۱)
 $\rightarrow \frac{2}{3}x - \frac{1}{3} = y$ $y = 0 \rightarrow x = \frac{1}{2}$ (۲)
 $x = 0 \rightarrow y = -\frac{1}{2}$ $\Rightarrow$ 
 $S = \frac{\text{ارتفاع} \times \text{طول}}{2} = \frac{1}{2} \times \left| -\frac{1}{2} \right| = \frac{1}{4}$ ✓

(۲) $y = x^2 - 2x + 3$ و $x \in [1, +\infty)$ $\rightarrow -\frac{b}{2a} = \frac{2}{2} = 1$ کمیته است ✓
 $y = (x^2 - 2x + 1) + 2 = (x - 1)^2 + 2 \rightarrow \sqrt{y - 2} + 1 = x$ (۲)
 $\sqrt{y - 2} + 1 = x$ ✓ 

$Rf = Df^{-1} \Rightarrow Df^{-1} = [2, +\infty)$ ✓
 $y = x^2 - 2x + 3$ و $x \in [2, +\infty)$ $\rightarrow -\frac{b}{2a} = 1 \rightarrow$ 
 $\Rightarrow y = \sqrt{x - 2} + 1$ ✓
 $Df^{-1} = Rf \rightarrow Df = [2, +\infty)$ ✓

Genobar



$$y = 2x - \sqrt{4 - 4x + 4x^2} = 2x - \sqrt{(2x - 1)^2} = 2x - |2x - 1| \quad (2)$$

$$\Rightarrow \begin{cases} 2x - 2x + 1 = 1 & : x \geq \frac{1}{2} \\ 2x + 2x - 1 = 4x - 1 & : x < \frac{1}{2} \end{cases} \rightarrow y = 4x - 1 \rightarrow x = \frac{y+1}{4} \rightarrow y = \frac{x+1}{2}$$

$$\text{Domain: } D_f^{-1} = (-\infty, \infty] \quad \text{Range: } D_f = (-\infty, 2]$$

Graph of $y = \frac{x+1}{2}$ for $x \leq 1$. The graph is a straight line with a slope of $\frac{1}{2}$ and a y-intercept of $\frac{1}{2}$. The domain is $x \leq 1$, and the range is $y \leq 2$.

$$y = \frac{x}{\sqrt{x^2 - a^2}} \quad y_1 = \frac{x_1}{\sqrt{x_1^2 - a^2}} \quad y_2 = \frac{x_2}{\sqrt{x_2^2 - a^2}} \rightarrow \frac{y_1}{y_2} = \frac{x_1}{x_2} \quad (2)$$

$$\Rightarrow \frac{x_1}{\sqrt{x_1^2 - a^2}} = \frac{x_2}{\sqrt{x_2^2 - a^2}} \rightarrow \frac{x_1^2}{x_1^2 - a^2} = \frac{x_2^2}{x_2^2 - a^2} \rightarrow x_1^2 = x_2^2 \rightarrow x_1 = \pm x_2$$

$$\Rightarrow x_1 = \pm x_2 \rightarrow \boxed{x_1 = x_2}$$

Graph of $y = \frac{x}{\sqrt{x^2 - a^2}}$ for $x \geq a$. The graph is a curve that starts at $(a, 1)$ and increases as x increases.

$$y = \frac{x}{\sqrt{x^2 - a^2}} \Rightarrow y^2 = \frac{x^2}{x^2 - a^2} \rightarrow y^2 x^2 - a^2 y^2 = x^2 \rightarrow y^2 x^2 - x^2 = a^2 y^2 \rightarrow x^2 (y^2 - 1) = a^2 y^2$$

$$\Rightarrow x^2 = \frac{a^2 y^2}{y^2 - 1} \rightarrow x = \pm \sqrt{\frac{a^2 y^2}{y^2 - 1}} \quad \text{Graph of } y = \pm \sqrt{\frac{a^2 y^2}{y^2 - 1}} \rightarrow 2.$$

ن و ی هم علامت!

$$\begin{aligned}
 10 \quad g(x) &= \begin{cases} x^2 - 5x + k : x \geq 5 \rightarrow -\frac{b}{2a} = \frac{5}{2} = 2.5 \rightarrow \text{منفی رو به بالا} \\ -x^2 + 4x + 5k : x < 5 \rightarrow -\frac{b}{2a} = \frac{-4}{-2} = 2 \rightarrow \text{منفی رو به پایین} \end{cases}
 \end{aligned}$$

$$\begin{aligned}
 12 \quad \text{ظرفه اول} \quad x=5 &\rightarrow \begin{cases} 5 - 1 + k = k - 5 \\ k - 5 \geq 1 + 5k \end{cases} \\
 13 \quad \text{ظرفه دوم} \quad x=5 &\rightarrow -5 + 12 + 5k = 1 + 5k
 \end{aligned}$$

$$14 \quad k - 5 \geq 1 + 5k \rightarrow -15 \geq 4k \rightarrow \boxed{-4 \geq k} \quad \checkmark$$

$$y = \sqrt{x} + |x| \quad \begin{cases} \exists x : x \geq 0 \xrightarrow{\text{sub}} y = \sqrt{x} \rightarrow x = \frac{1}{x} : x \geq 0 \\ \forall x : x \leq 0 \xrightarrow{\text{sub}} y = \sqrt{x} \rightarrow x = \frac{y}{x} : x \leq 0 \end{cases}$$

$$\Rightarrow f^{-1}(x) = \begin{cases} \frac{x}{2} : x \geq 0 \\ \frac{x}{x} : x \leq 0 \end{cases} \rightarrow ax + b|x| \quad \begin{cases} (a+b)x : x \geq 0 \\ (a-b)x : x \leq 0 \end{cases}$$

$$\begin{cases} a+b = \frac{1}{2} \\ a-b = \frac{1}{x} \end{cases} \Rightarrow \begin{cases} 2a = \frac{1}{2} + \frac{1}{x} \\ a = \frac{1}{4} + \frac{1}{2x} \end{cases}, b = -\frac{1}{x}$$

$$\Rightarrow ax + b = \frac{1}{4}x + \frac{1}{2} - \frac{1}{x} = -\frac{1}{4x}$$



Genobar

$$y = \frac{mx + c}{x + m} \xrightarrow{(1, -1)} \frac{4 + c}{4 + m} = -1 \rightarrow 4 + c = -4 - m \rightarrow m = -4 \checkmark \text{ (✓)}$$

$\Rightarrow y = \frac{(2)(1)}{(x-1)} \Rightarrow$ چون $d = -1$ است، پس داریم $y = \frac{2}{x-1}$ است.

$$f^{-1}(x) = \frac{5x+2}{x-5} \rightarrow y = f \circ f^{-1}(x) + f^{-1}(x) = x + \frac{5x+2}{x-5}$$

$$\rightarrow y = \frac{x^T + \varepsilon}{x - 5} \quad \underline{y = n} \rightarrow \frac{x^T + \varepsilon}{x - 5} = n \rightarrow x^T + \varepsilon = x^T - 5n$$

$\rightarrow 2 - 2 \rightarrow x = 2 - \frac{2}{2} \rightarrow 1 \checkmark$

$$f(r - \tau_n) = r - g\left(\frac{\tau}{\epsilon}\right) \rightarrow \epsilon g^{-1}(\tau) + f^{-1}(r) = ?$$

$\hookrightarrow -\tau = \gamma - (\xi) \quad \checkmark \quad ! \text{ (مطلوبه) } \Rightarrow \begin{cases} f(\gamma - \tau) = -\tau \\ g(\frac{\tau}{\gamma}) = \xi \end{cases}$

$$\Rightarrow \sum \left(\frac{x}{r} \right) + r - 2x = r x + r - 2x = r \rightarrow ? \checkmark$$

حَقَّطَانِ

اینکه نه نوشتن حال نفعیاز: $15 \rightarrow x = \frac{5x + 15}{1 + x}$ $-x = \frac{-5x - 15}{1 + x}$ $y = \frac{5x - 15}{1 - x}$ 15 ناحیه دوم و چهارم !!

من حال تعیین $x = \frac{-5y - 15}{1 + y} \rightarrow y = \frac{5x - 15}{1 - x}$ و جابره !!
 و قیدین $x \neq -1$ و $y \neq 1$

~~$$\rightarrow y = \frac{-2x + 15}{1 - 0.5x} \xrightarrow{\text{substituting } x=2} y = \frac{-(2-2) + 15}{1 - 0.5(2-2)} = \frac{-2x + 15}{-0.5x - 9}$$~~

$$\text{جواب دہیے، } y = \frac{x-10}{\omega x+9} - 5 = \frac{x-10-10x-45}{\omega x+9} = \frac{-19x-55}{\omega x+9}$$

$$f^{-1} = \frac{-9x - 55}{5x + 12} \rightarrow f^{-1} \circ f \rightarrow \frac{-9x + 55}{5x + 12} \circ \frac{-5x - 9}{5x + 12}$$

$$\rightarrow -V_0 \eta^T \tilde{F}_9 \eta + \omega \wedge \wedge = -\frac{1}{2} \omega \eta^T + 159 \eta + 15 V \wedge$$

$\rightarrow -20x - 250x + 1000 \rightarrow x = \frac{b}{a} = \frac{250}{-20}$ Senobar 

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$$\textcircled{I} y = x + \varepsilon[x] \xrightarrow[\text{طرفین میں}]{\text{ایک طرف میں}} x = y + \varepsilon[y]$$

(۲) (۱۰)

$$\textcircled{II} [y] = [x + \varepsilon[x]] \rightarrow [y] = \omega[x] \rightarrow [x] = \frac{[y]}{\omega}$$

$$\text{جیسا کہ پہلے دیکھا گیا تھا} \quad [y] = \frac{[x]}{\omega}$$

$$\begin{aligned} & \Rightarrow \left\{ \begin{array}{l} [y] = \frac{[x]}{\omega} \\ x = y + \varepsilon[y] \end{array} \right\} \Rightarrow x - \varepsilon[y] = y \rightarrow \boxed{x - \frac{\varepsilon[x]}{\omega} = y} \end{aligned}$$

$$\Rightarrow g(x) = x - \frac{\varepsilon}{\omega}[x] \quad , \quad f(x) = x + \varepsilon[x]$$

$$\textcircled{8} (f - g)(x) = x + \varepsilon[x] - x + \frac{\varepsilon}{\omega}[x] = \left(\frac{2\varepsilon}{\omega} [x] \right) \rightarrow 2 \checkmark$$