

Subject: (

1) γ_0

مستقيم

مستقيم

Date: _____

1

الف) $f(x) = \left\{ (x, y), (n, y), (x, \frac{n^2 - n}{2}), (n, x), (-1, x) \right\}$

$n = 2$

مستقيم $n^2 - n = 2 \Rightarrow n^2 - n - 2 = 0 \Rightarrow (n-2)(n+1) = 0$

$n = 2$

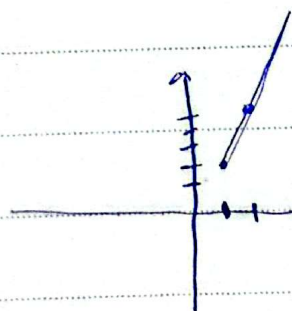
ب) $f = \left\{ (-1, 1), (1, 2), (2, 2), (a, m-1), (a+1, n), (n, m) \right\}$

$n = 2$

$a = -1$

$n = 2$

ج) مستقيم $f(x) = \begin{cases} x-1 & x \geq 1 \\ x+a & x < 1 \end{cases}$



مستقيم

$\emptyset \Rightarrow$ مستقيم

$x=1 \Rightarrow y=2$

$R = [2, +\infty)$

$x+a < 2$

$x=1 \Rightarrow 1+a < 2 \Rightarrow a < 1$

د) مستقيم $f(x) = \begin{cases} x-1 & x \geq 1 \\ ax+a-1 & x \leq 0 \end{cases}$

مستقيم R

$x=1 \Rightarrow 1-1=0$

$R = [0, +\infty)$

$a > 0$

$ax+a-1 < 0 \Rightarrow ax < 1-a$

Arman $\Rightarrow 0 < a < 1$

$a-1 < 0$
 $a < 1$

یک به یک درون قدام برآورد - اکسای ضعیفی حدس

$y = x^2 + 2$ (الف)



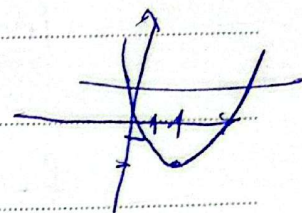
را یک به یک

(5)

محل $\Rightarrow x = y^2 + 2 \Rightarrow \sqrt{x-2} = y$

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

$\frac{-b}{2a} = \frac{2}{2} = 1$

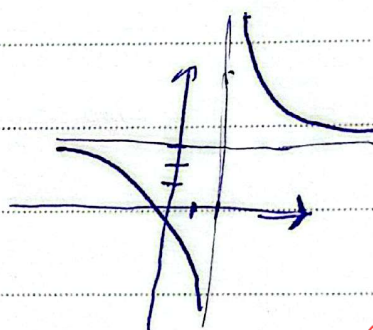


$4 - 4 + 2 = 2$

را یک به یک - غیر متجانس مکتوب شود

(الف) $y = \frac{x+1}{x-2}$
محل $\Rightarrow$ معادله افتد
محل $\Rightarrow$ معادله افتد

نس

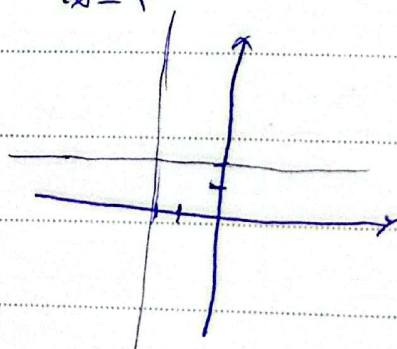


(5)

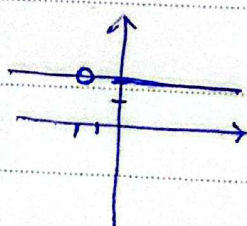
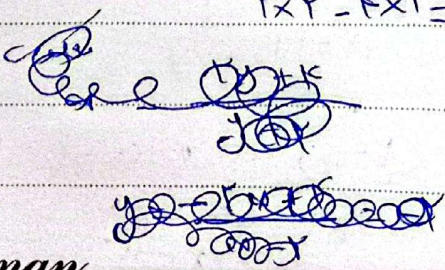
$2x(-2) - |x| = -4 < 0$

محل $x = \frac{y+1}{y-2} \Rightarrow y = \frac{x+1}{x-2}$

(ب) $y = \frac{x+2}{x-2} = 2$
محل $\Rightarrow$ معادله افتد
محل $\Rightarrow$ معادله افتد



$2x2 - |x| = 0$

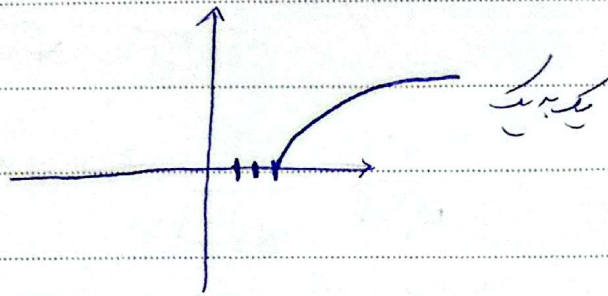


نسبت
یک به یک
محل

$$f(x) = \sqrt{x-2}$$

$$x \Rightarrow R = [0, +\infty)$$

(4)



$$x = \sqrt{y-2}$$

$$x^2 = y - 2 \Rightarrow y = x^2 + 2$$

$$\text{محدوده } D = [0, +\infty)$$

$$y = x^2 - 2x + 3 \quad x \in [1, +\infty)$$

(5)

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

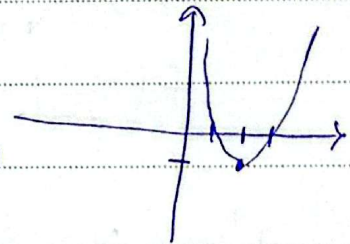
$$1 - 2 + 3$$

$$1 + x = y^2 - 2y + 3 + 1 \Rightarrow (y-2)^2 = x+1$$

$$y-2 = \sqrt{x+1}$$

$$\text{محدوده } \Rightarrow y = \sqrt{x+1} + 2$$

$$\text{محدوده } D = [-1, +\infty)$$



$$f(x) = x + \sqrt{x} \quad (0, +\infty)$$

(6) دامنه تابع

$$f'(x) = a + b - \sqrt{x-c}$$

$$a = 1 \quad c = -\frac{1}{2}$$

$$b = \frac{1}{2}$$

$$\text{مثلاً } x = 9 + \sqrt{9} \Rightarrow \left(\sqrt{9} + \frac{1}{2}\right)^2 - \frac{1}{2} = 9$$

$$\sqrt{9} = \sqrt{9 + \frac{1}{2} - \frac{1}{2}} \Rightarrow 9 = x + \frac{1}{2} + \frac{1}{2} - \sqrt{\left(\frac{1}{2}\right)^2 - \frac{1}{2}}$$

Arman

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

$$y = \frac{x}{\sqrt{x^2 - r}} \Rightarrow f(x_1) = f(x_2) \Rightarrow \frac{x_1}{\sqrt{x_1^2 - 1}} = \frac{x_2}{\sqrt{x_2^2 - 1}} \quad (1)$$

$$\frac{x_1^r}{x_1^r - 1} = \frac{x_2^r}{x_2^r - 1} \Rightarrow x_1^r (x_2^r - 1) = x_2^r (x_1^r - 1) \quad (5)$$

$$\Rightarrow x_1^r x_2^r - x_1^r = x_2^r x_1^r - x_2^r \Rightarrow x_1^r = x_2^r \Rightarrow x_1 = \pm x_2$$

نکته: اگر $x_1 = x_2$ و $y_1 = y_2$ باشد، آنگاه $f(x_1) = f(x_2)$ و $g(y_1) = g(y_2)$ است.

$$\text{در } y: x = \frac{y}{\sqrt{y^2 - r}} \Rightarrow x^r = \frac{y^r}{y^r - r} \Rightarrow y^r = \frac{r x^r}{x^r - 1}$$

$$\Rightarrow y = \pm \sqrt{\frac{r x^r}{x^r - 1}}$$

$$f\left(-\frac{r}{2}\right) + g^{-1}\left(-\frac{r}{2}\right) g(x) = \sqrt{x} - 1, \quad f^{-1}(x) = \frac{x}{1+|x|} \quad (9)$$

$$g^{-1} \Rightarrow x = \sqrt{y} - 1 \Rightarrow x + 1 = \sqrt{y} \Rightarrow (x + 1)^r = y$$

$$\Rightarrow \left(-\frac{r}{2} + 1\right)^r = \frac{9}{4} \quad (5)$$

$$f \Rightarrow x = \frac{y}{1+|y|}$$

$$\text{اگر } f \Rightarrow \text{اگر } f^{-1}$$

$$\frac{x}{1+|x|} = -\frac{r}{2}$$

$$\Rightarrow -r + -r|x| = 0$$

$$x < 0, \quad -r - rx = 0$$

$$-r = \sqrt{x} \Rightarrow x = -\frac{r}{V}$$

$$\frac{r}{9} - \frac{r}{4} = -\frac{r}{\sqrt{4}}$$

$$x < 0, \quad -r + rx = 0$$

$$-r = rx \Rightarrow x = -\frac{r}{r}$$

— Arman —

Q. Simplify

Subject: ()

Date:

Q. Let $g(x) = f(x) + \sqrt{f(x)}$ and $f^{-1}(x) = \sqrt{x-1}$ (10)

$g^{-1}(11)$

$$f(x) \Rightarrow x = \sqrt{y-1} \Rightarrow x^2 = y-1 \Rightarrow y = x^2 + 1$$

$$g(x) = x^2 + 1 + \sqrt{x^2 + 1} = 11 \Rightarrow x^2 + 1 = 9 \Rightarrow x^2 = 8 \Rightarrow x = \sqrt{8}$$

Let $g^{-1} \Rightarrow$ let g

$$\boxed{x=2}$$

$$g^{-1}(11) = 2$$