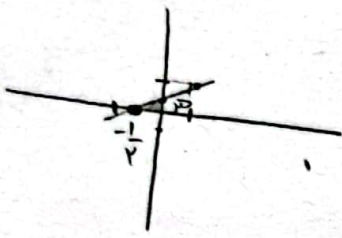


۲. آفرین (😊)

$2y = 3x - 1$ $\xrightarrow{\text{داده}}$ $2x = 3y - 1$ $3y = 2x + 1$ $y = \frac{2x+1}{3}$

آینا نامداری
دوازدهم و هفتم
تلف ۱۰



$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$

$\frac{2}{3}x + \frac{1}{3} = 0$
 $\frac{2}{3}x = -\frac{1}{3}$
 $x = -\frac{1}{2}$

1

۲

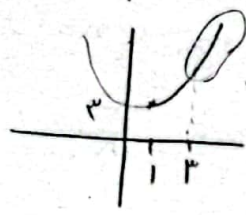
۲

$y = x^2 - 2x + 3$ $[1, +\infty)$
 $\frac{y}{x} = 1$



دایره
 یک یک است
 برد این است

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



دایره
 یک یک است

۲

ضابطه
Coles

$x^2 - 2x + 3 = y + 2$

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

$(y-1)^2 = x - 1$

$|y-1| = \sqrt{x-1}$ $\xrightarrow{\text{مربع دایره}}$ $y-1 = \sqrt{x-1}$

$y = \sqrt{x-1} + 1$
 ضابطه مقبول است

۳

$y = 2x - \sqrt{14 - 4x(x-2)}$ $-y - 2x = -\sqrt{14 - 4x(x-2)}$

$14 - 14x + 4x^2$

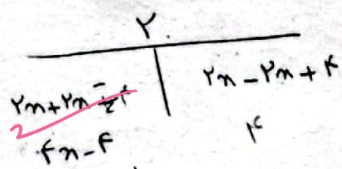
$4x^2 - 14x + 14$

$4(x^2 - 3.5x + 3.5)$

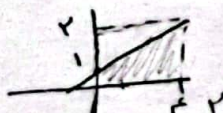
$\sqrt{4(x-2)^2} = 2|x-2|$

$2x - 2|x-2|$

$-x + 2$



دوره $(-\infty, 2]$



$\frac{(1+2)^2}{4} = 4$

$x = 4y - 4$

$y = x + 4$

$y = \frac{x+4}{4}$

۴

$y = \frac{x}{\sqrt{x^2 - a}}$

$y^2 = \frac{x^2}{x^2 - a}$

$y^2 x^2 - a y^2 = x^2$

$x^2 (y^2 - 1) = a y^2$

$x^2 = \frac{a y^2}{y^2 - 1} \rightarrow y^2 = \frac{a x^2}{x^2 - 1}$

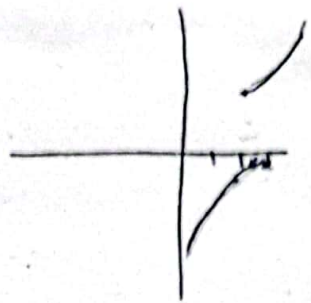
$y = \pm \sqrt{\frac{a x^2}{x^2 - 1}}$

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

مستقیم و منحنی هستند

8

$$f(x) = \begin{cases} x^2 - 4x + 1 & x \geq 2 \\ -x^2 + 4x + 1 & x < 2 \end{cases}$$



4

$$f(-1) + k = -f(1) + k \geq -f(1) + 1 + 3k$$

$$1 < \leq -1 \quad k \leq -4$$

$$f(x) = 2x + |x| \rightarrow \begin{cases} 3x & x \geq 0 \\ x & x < 0 \end{cases}$$

$$f^{-1}(x) = \begin{cases} \frac{1}{3}x & x \geq 0 \\ x & x < 0 \end{cases}$$

4

$$x = 2y + |y|$$

$$a = \frac{1}{2} + \frac{1}{2} = 1 \rightarrow \frac{1}{2} \quad b = \frac{1}{2} - \frac{1}{2} = 0$$

$$a \times b = \frac{1}{2} \times 0 = 0$$

5

$$f(n) = \frac{2n+1}{n+1} \rightarrow \frac{10}{10} = 1$$

$$\frac{2y+1}{y+1} = x \rightarrow y(2-x) = x - 2$$

$$10 = -20 - 1 \cdot m$$

$$1 \cdot m = -20 \quad m = -20$$

4

$$f^{-1}(n) + f \circ f^{-1}(n) \rightarrow$$

$$x + f^{-1}\left(\frac{2x-1}{x-1}\right) = x \rightarrow \frac{-2x-1}{x-1} = 0 \rightarrow -2x-1 = 0 \rightarrow x = -\frac{1}{2}$$

$$y = x$$

1

$$f(2-x) = 2 - g\left(\frac{x}{2}\right)$$

$$g\left(\frac{x}{2}\right) = 2 - f(2-x)$$

$$2 - g\left(\frac{x}{2}\right) = 2$$

$$g\left(\frac{x}{2}\right) = 0$$

$$g^{-1}(0) = \frac{x}{2}$$

4

$$f \circ g^{-1}(x) + f^{-1}(-x)$$

$$f \circ g^{-1}(x) + 2 - 2x = 2$$

$$f(2-x) = 2$$

$$f^{-1}(2) = 2-x$$

9

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

$$y = \frac{2x+1}{1+x}$$

$$\frac{0(2-x)+1}{1+(2-x)}$$

$$f = \frac{2x+1}{x-1}$$

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

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

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

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

$$2x+1-2x+1 = 2$$

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

$$(2-x)y = -x-1$$

قرینه است $y = x$

$$x = y + f[y]$$

$$y = x - f[y]$$

$$[x] = [y + f[y]]$$

$$[x] = \omega [y]$$

$$[y] = \frac{[x]}{\omega}$$

$$f - g(x) = \cancel{x} + f[x] - \cancel{x} + \frac{f[x]}{\omega} = \frac{f[x]}{\omega}$$

$$y = x - \frac{f[x]}{\omega}$$