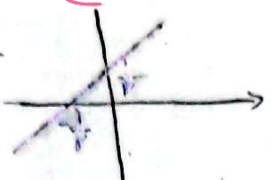
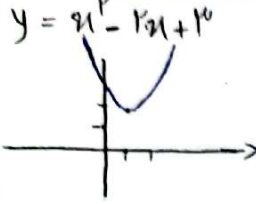


$2x = 3y - 1 \rightarrow y = \frac{2}{3}x + \frac{1}{3}$
 $x = 0 \rightarrow y = \frac{1}{3}$
 $y = 0 \rightarrow x = -\frac{1}{2}$

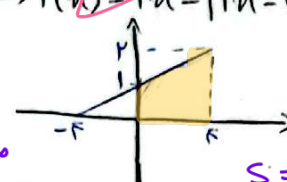


$S = \frac{\frac{1}{3} \times \frac{1}{2}}{2} = \frac{1}{12}$

$y = x^2 - 2x + 3$
 $\frac{-b}{2a} = 1 \rightarrow$ یک به یک هستند چون طول راست دایره آنهاست
 $y = x^2 - 2x + 1 + 2$
 $y = (x-1)^2 + 2$
 $R_f = D_f^{-1}$
 $f^{-1} = \sqrt{x-2} + 1$ (الف)
 $f^{-1} = \sqrt{x-2} + 1$; $x \geq 2$ (ب)



$f(x) = 2x - \sqrt{16 - 16x + 4x^2}$
 $f(x) = 2x - \sqrt{(2x-4)^2} \rightarrow f(x) = 2x - |2x-4|$
 $f^{-1} = \frac{x+4}{2}$; $x \leq 4$
 $S = \frac{4 \times 2}{2} = 4$
 $S = \frac{4(1+2)}{2} = 6$



$y_1 = y_2$
 $\frac{x_1}{\sqrt{x_1^2 - 4}} = \frac{x_2}{\sqrt{x_2^2 - 4}}$
 $\frac{x_1^2}{x_1^2 - 4} = \frac{x_2^2}{x_2^2 - 4}$
 $x_1^2 x_2^2 - 4x_1^2 = x_1^2 x_2^2 - 4x_2^2 \rightarrow x_1^2 = x_2^2$
 $x_1 = \pm x_2$
 $y^2(x^2 - 1) = 4x^2$
 $y^2 = \frac{4x^2}{x^2 - 1}$
 $y = \pm \frac{\sqrt{4}x}{\sqrt{x^2 - 1}}$

$x^2 - 5x + k : \frac{-b}{2a} = 2 \rightarrow -x^2 + 5x + 3k : \frac{-b}{2a} = 3$
 $x = 2 \rightarrow -x^2 + 5x + 3k = 4 + 3k$
 $x = 3 \rightarrow -x^2 + 5x + 3k = 9 + 3k$
 $4 + 3k \leq 9 + 3k \rightarrow k \leq 5$

$f^{-1} = \begin{cases} \frac{1}{5}x & x > 0 \\ \frac{1}{2}x & x < 0 \end{cases}$
 $a = \frac{\frac{1}{5} + \frac{1}{2}}{2} = \frac{7}{20}$
 $b = \frac{\frac{1}{5} - \frac{1}{2}}{2} = -\frac{3}{20}$
 $ab = \frac{7}{20} \times (-\frac{3}{20}) = -\frac{21}{400}$

$-10 = \frac{6+5}{2+m} \rightarrow 2+m = -1 \rightarrow m = -3$
 $f(x) = \frac{3x+5}{x-2} \rightarrow f^{-1}(x) = \frac{3x+5}{x-2}$
 $f \circ f^{-1}(x) = x$

$f^{-1}(2 - g(\frac{x}{2})) = 3 - 2x$
 $2 - g(\frac{x}{2}) = -2 \rightarrow g(\frac{x}{2}) = 4 \rightarrow g^{-1}(4) = \frac{x}{2}$
 $4g^{-1}(4) + f^{-1}(-2) = 4(\frac{x}{2}) + 3 - 2x = 2x + 3 - 2x = 3$

$y = \frac{5x-13}{1-x} \rightarrow -y = \frac{-5x+13}{1+x}$
 $y = \frac{5x+9}{y-1} \rightarrow y = -\frac{5x-9}{x-2}$
 $f^{-1}(x) = \frac{x+9}{x-2}$
 $\frac{5x+9}{x-1} = \frac{x+9}{x-2}$
 $5x^2 + 2x - 12 = x^2 + 9x - 18$
 $4x^2 - 7x + 6 = 0$

$y = x + f[x] \quad x = y + f[y] \quad y = x - f[y] \quad [x] = [y + f[y]] \quad [x] = [y] + f[y]$
 $[x] = 5[y] \quad [y] = \frac{[x]}{5} \quad g(x) = x - \frac{f[x]}{5} \quad (f-g)(x) = x + f[x] - x - \frac{f[x]}{5} = \frac{4f[x]}{5}$