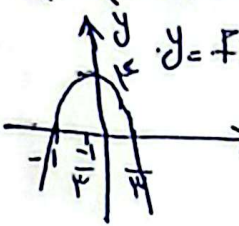
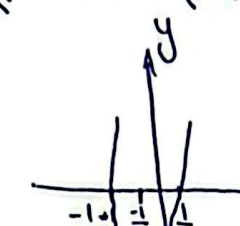
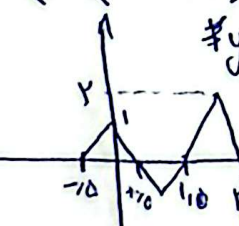
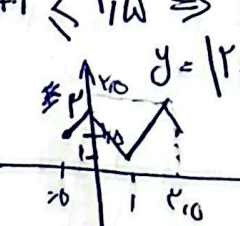


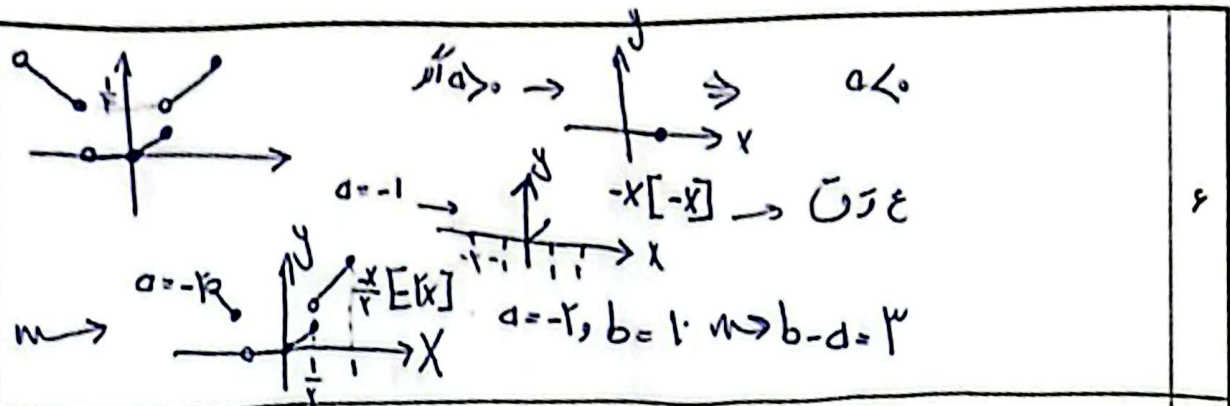
$\frac{-b}{2a} = \frac{-\frac{1}{2}}{\frac{1}{2}} = -1$, $\Delta = \frac{1}{4} - 4(-\frac{1}{2})(\frac{1}{2}) = \frac{1}{4} + 2 = \frac{9}{4}$
 $\Delta x = \frac{1}{2} - \frac{1}{2} = 0$, $\Delta y = \frac{1}{2}$
 $x = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow x_{1,2} = \frac{1}{2} \pm \frac{3}{2} \Rightarrow x_1 = 2, x_2 = -1$
 $\Delta x = \frac{1}{2} + \frac{1}{2} \Rightarrow x' = 1$

$-1 \leq x \leq 3 \Rightarrow -1 \leq 3x+2 \leq 11 \Rightarrow -1 \leq x \leq \frac{1}{3}$
 $Df(3x+2) = [-1, \frac{1}{3}]$


 $A = (-\frac{1}{3}, -1) \rightarrow A(\frac{1}{3}, -1)$

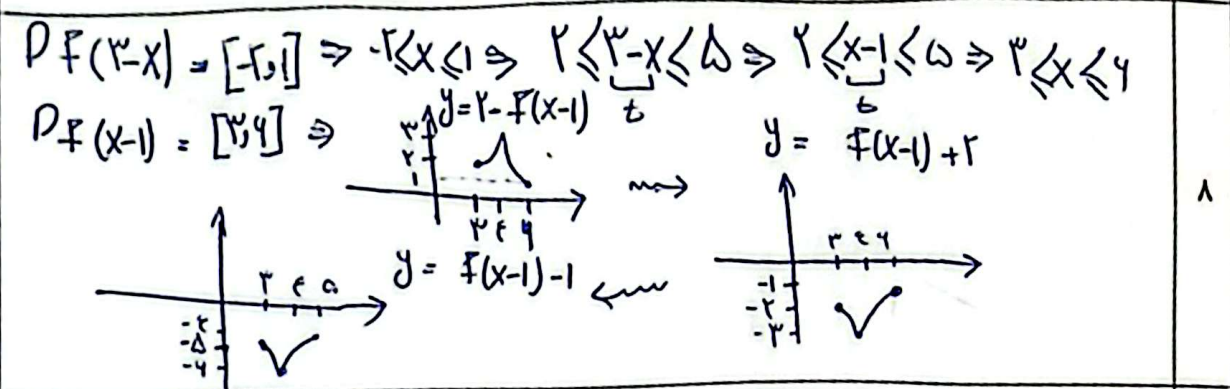
$y = 3 - \sqrt{2x}$ $\xrightarrow{\text{یک طرفه مثبتی}}$ $y = 3 - \sqrt{2x+2}$ $\xrightarrow{\text{همیشه مثبت}}$ $y = \sqrt{2x+2} - 3$
 $\xrightarrow{\text{همواره مثبتی و}}$ $y = \sqrt{2x+2} + 2 \Rightarrow \sqrt{2x+2} = \frac{y-2}{1} \Rightarrow 2x+2 = \frac{(y-2)^2}{1}$
 $\Rightarrow 2x = \frac{(y-2)^2}{1} \Rightarrow x = \frac{(y-2)^2}{2}$

$Df = (a, b]$ $a < x-1 \leq b \Rightarrow a+1 < x \leq b+1 \Rightarrow Df(x-1) = (a+1, b+1]$
 $Dg = [-1, b)$ $-1 < x+1 < b \Rightarrow -2 < x < b-1 \Rightarrow Dg(x+1) = (-2, b-1)$
 $[-2, b-1) \cap (a+1, b+1] = (-2, b)$ $a+1 = -2 \rightarrow a = -3$
 $b-1 = b \rightarrow b = b$
 $d-b = -9$

$-3 \leq x \leq 5 \Rightarrow -1 \leq \frac{x}{2} + 1 \leq 3 \Rightarrow Df(x) = [-1, 3]$
 $y = f(x)$ $\rightarrow y = |f(x)-3|$


 $Df = [-1, 3]$
 $Rf = [1, \sqrt{2}]$



$f(x) = \log_2 x \xrightarrow{\text{مردن نسبت به } x} f(x) = \log_2(x+2) \xrightarrow{\text{مردن نسبت به } x} f(x) = \log_2(x+2) - \log_2(x+2)$
 $\xrightarrow{\text{مردن نسبت به } x} f(x) = -\log_2(x+2) \xrightarrow{\text{مردن نسبت به } x} g(x) = -\log_2(-x+2) + 3$
 $g(-1) + g(-4) = -\log_2 3 + 3 + -\log_2 6 + 3 = -4$



$f(x) = \left| \frac{x+1}{2x+1} \right| \xrightarrow{\text{مردن نسبت به } x} g(x) = \left| \frac{x-1}{2x-3} \right| + 1 \Rightarrow \left| \frac{x-1}{2x-3} \right| + x + 1 < 0$
 $\frac{x-1}{2x-3} \xrightarrow{\text{مردن نسبت به } x} \frac{x-1}{2x-3} + 1 < 0 \Rightarrow \frac{x-1}{2x-3} < -1 \Rightarrow x < -1$
 $\frac{x-1}{2x-3} + x + 1 < 0 \Rightarrow \frac{x-1}{2x-3} < -x-1 \Rightarrow \frac{x-1}{2x-3} < -x-1$
 $\frac{x-1}{2x-3} < -x-1 \Rightarrow \frac{x-1}{2x-3} < -x-1 \Rightarrow \frac{x-1}{2x-3} < -x-1$

