

الف) $f(x) = 2 \sin^2(x + \frac{\pi}{4}) - 1$

$\sin^2 \frac{1}{2}$
-1 $R = [-1, 1]$

ب) $g(x) = 3 \cos^2 x - 4$

$\cos^2 \frac{1}{2}$
-1 $R = [-4, 5]$ (1)

$y = \frac{x}{|x|} + [x]$

$-2 \leq x < -1 \rightarrow y = -1 - 2 = -3$

$-1 \leq x < 0 \rightarrow -1 - 1 = -2$

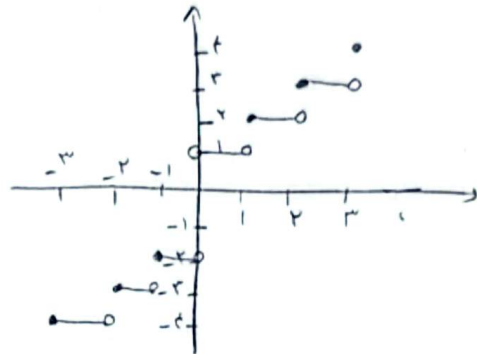
$0 \leq x < 1 \rightarrow -1 - 0 = -1$

$1 \leq x < 2 \rightarrow 1 + 0 = 1$

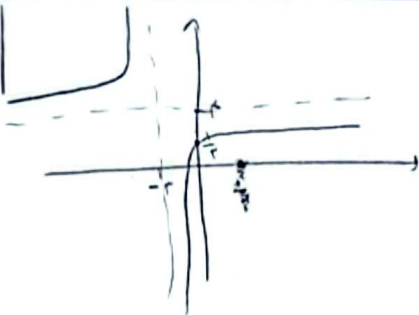
$2 \leq x < 3 \rightarrow 1 + 1 = 2$

$3 \leq x < 4 \rightarrow 1 + 2 = 3$

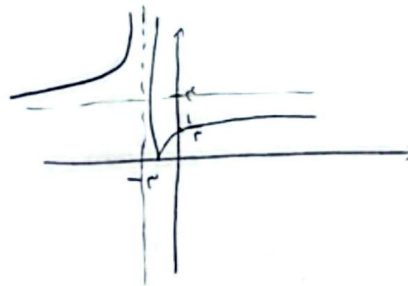
$x \geq 4 \rightarrow 1 + 3 = 4$



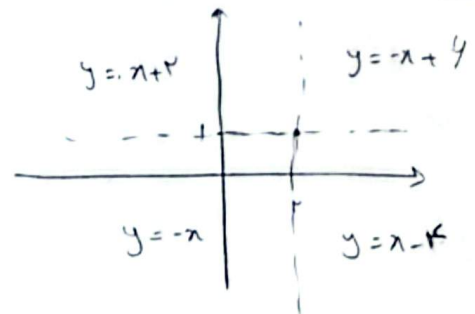
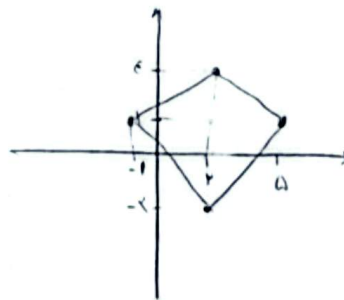
$y = \left| \frac{x+1}{x+3} \right|$



فردی



$|x-2| + |y-1| = 3$



الف) $f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}}$

$x + \frac{1}{x} \geq 2 \rightarrow [2, \infty)$

$t = \infty \rightarrow +\infty$

$t = \sqrt{2} \rightarrow f(x) = 2 + \sqrt{2}$

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

$R = [2 + \sqrt{2}, \infty)$

ب) $y = (3 - \sin x)(1 + \sin x)$

$\rightarrow 3 + 3 \sin x - \sin x - \sin^2 x = y \rightarrow y = -\sin^2 x + 2 \sin x + 3$

$\sin x \frac{1}{2}$
-1 $-1 + 2 + 3 = 4$
-1 $-1 - 2 + 3 = 0$
 $-\frac{b}{2a} = -\frac{2}{-2} = 1 \rightarrow 0$

$R = [0, 4]$

(2)

