①

a. $f(x) = |x-3| - 1$

desplazamiento: 3 derecha
1 abajo

$|x-3| - 1 = 0$
$|x-3| = 1$

$x - 3 = -1$ | $x - 3 = 1$
$x = -1 + 3$ | $x = 1 + 3$
$x = 2$ | $x = 4$

$y = |0-3| - 1$
$y = |-3| - 1$
$y = 3 - 1$
$y = 2$

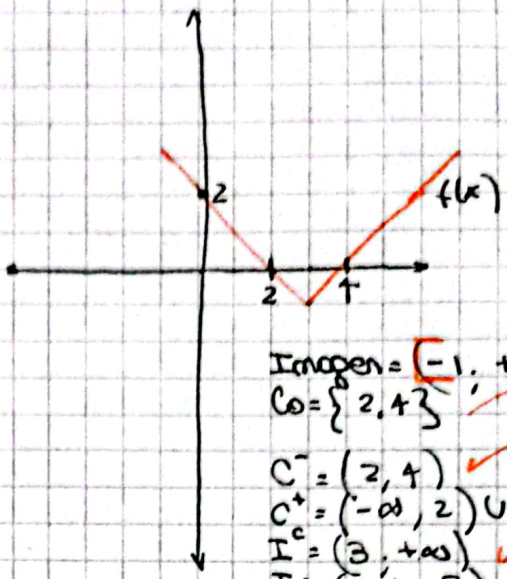


Imagen = $[-1, +\infty)$
Co = $\{2, 4\}$
$C^- = (2, 4)$
$C^+ = (-\infty, 2) \cup (4, +\infty)$
$I^c = (3, +\infty)$
$I_d = (-\infty, 3)$

b. $g(x) = 2|x+1| - 4$

desplazamiento = 1 izq
4 abajo

Corte eje x:

$2|x+1| - 4 = 0$
$2|x+1| = 4$
$|x+1| = 2$

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

Corte eje y:

$2|0+1| - 4 =$
$2 \cdot 1 - 4 = -2$

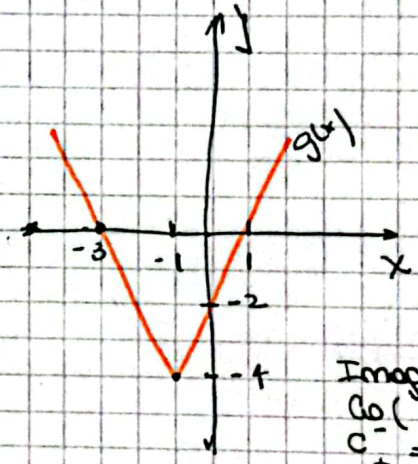


Imagen = $[-4, +\infty)$
Co $(-3, 1)$
$C^- = (-3, 1)$
$C^+ = (-\infty, -3) \cup (1, +\infty)$
$I_d = (-\infty, -1)$
$I_d = (-1, +\infty)$
C

(c) $h(x) = -|x+3|+2$

desplazamiento: 3 izq
2 arriba
se da vuelta la función $a<0$

Eje x

$-|x+3|+2 = 0$
$-|x+3| = -2$
$|x+3| = 2$

$x+3 = -2$ | $x+3 = 2$
$x = -2-3$ | $x = 2-3$
$x = -5$ | $x = -1$

Eje y: $-|0+3|+2$
$-3 + 2 = |-1|$

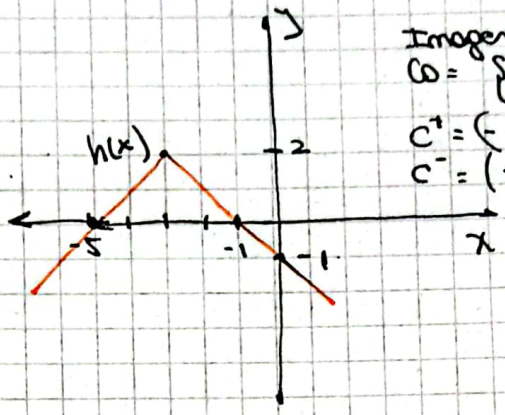


Imagen = $(2; -\infty)$
Co = $\{-5; -1\}$

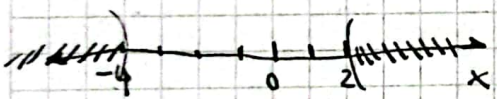
$C^+ = (-5, -1)$
$C^- = (-\infty; -5) \cup (-1; +\infty)$

Ic = $(-\infty; -3)$
Id = $(-3; +\infty)$

(2)

(a) $|x+1|+2 > 5$
$|x+1| > 5-2$
$|x+1| > 3$

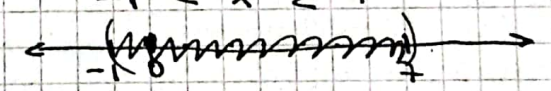
$x+1 < -3$ | $x+1 > 3$
$x < -3-1$ | $x > 3-1$
$x < -4$ | $x > 2$



$S = (-\infty; -4) \cup (2; +\infty)$

(b) $2-|x-3| > -2$
$-|x-3| > -2-2$
$-|x-3| > -4$
$|x-3| < 4$

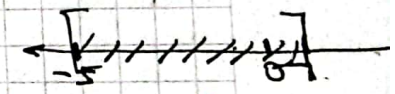
$-4 < |x-3| < 4$
$-4+3 < x < 4+3$
$-1 < x < 7$



$S = (-1; 7)$

(c) $1+|x+2| \leq 4$
$|x+2| \leq 4-1$
$|x+2| \leq 3$

$-3 \leq |x+2| \leq +3$
$3-2 \leq x \leq +3-2$
$-5 \leq x \leq +1$



(3) a.

(a) $3|x+2| - 8 \leq 4$
$3|x+2| \leq 4+8$
$|x+2| \leq 12/3$
$|x+2| \leq 4$

$-4 \leq x+2 \leq 4$
$-4-2 \leq x \leq 4-2$
$-6 \leq x \leq 2$

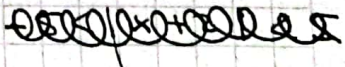
$S = [-6, 2]$

(b) $3-|4x+2| \leq -5$
-3
$-|4x+2| \leq -5-3$
$-|4x+2| \leq -8$
$|4x+2| \geq 8$

$4x+2 \leq -8$ | $4x+2 \geq 8$
$4x \leq -2-8$ | $4x \geq 8-2$
$4x \leq -10$ | $4x \geq 6$
$x \leq -10/4$ | $x \geq 6/4$
| $x \geq 3/2$

$S = (-\infty; -5/2) \cup (3/2; +\infty)$

(c) $|x+2|+6 < 1$
$|x+2| < 1-6$
$|x+2| < -5$



$S = \emptyset$

(d) $2|1-5x|-6>4$

$2|1-5x|>4+6$

$|1-5x|>10/2$

$|1-5x|>5$

$1-5x<-5$ $\quad$ $1-5x>5$

$-5x<-5-1$ $\quad$ $-5x>5-1$

$-5x<-6$ $\quad$ $-5x>4$

$x>6/5$ $\quad$ $x<-4/5$

$S=(-\infty;-4/5)\cup(6/5;+\infty)$ ✓

(e) $|3-2x|-7<2$

$|3-2x|<2+7$

$|3-2x|<9$

$-9<3-2x<9$

$-9-3<-2x<9-3$

$-12<-2x<6$

$-12/-2>x>6/-2$

$6>x>-3$

$S=(-3,6)$ ✓