Fecha:

03/04/2025

UNIVERSIDAD INTERAMERICANA PARA EL DESARROLLO

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Materia:

23234-LMEI-MTS01-Álgebra Superior

Maestra:

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Trabajo:

Actividad de Aprendizaje 12

:UNID

FORMANDO CON VALORES

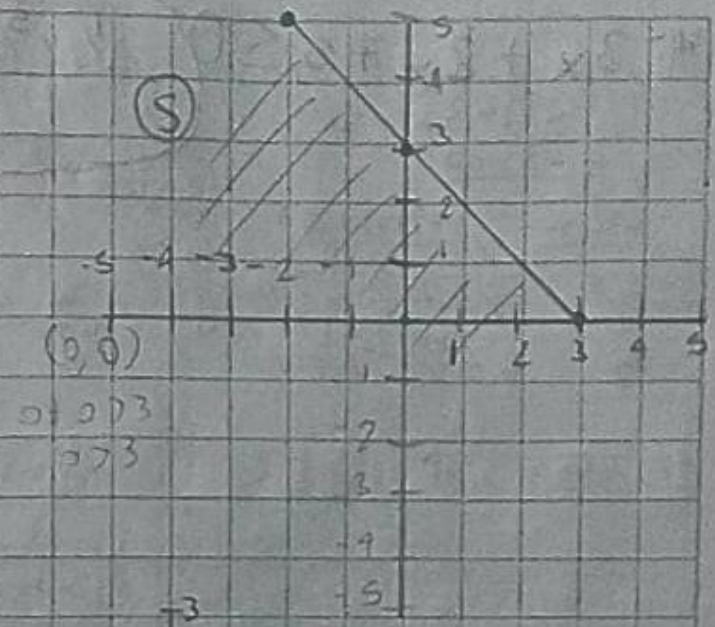
1: $x + y > 3$

$y > 3 - x$

y	5	3	0
x	-2	0	3

$y = 3 - (-2)$ $y = 3 - 0$ $y = 3 - 3$

$y = 5$ $y = 3$ $y = 0$



2: $x + 4y - 2 < 0$

$4y < 0 + 2 - x$

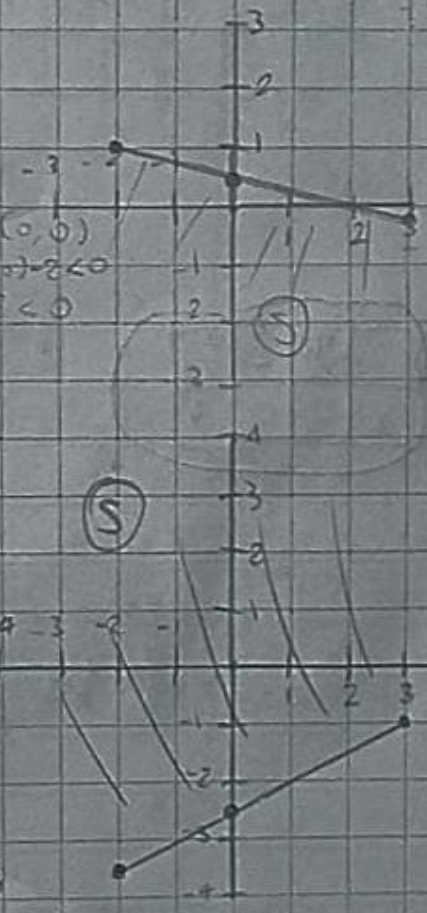
$y < \frac{2-x}{4}$

y	1	1/2	-1/4
x	-2	0	3

$y = \frac{2-(-2)}{4}$ $y = \frac{2-0}{4}$ $y = \frac{2-3}{4}$

$y = \frac{4}{4}$ $y = \frac{2}{4}$ $y = \frac{-1}{4}$

$y = 1$ $y = 1/2$ $y = -1/4$



3: $x - 2y < 5$

$-2y < 5 - x$

$2y > -5 + x$

$y > \frac{-5+x}{2}$

y	-7/2	-5/2	-1
x	-2	0	3

$y = \frac{-5+(-2)}{2}$ $y = \frac{-5+0}{2}$ $y = \frac{-5+3}{2}$

$y = \frac{-7}{2} = 3\frac{1}{2}$ $y = \frac{-5}{2} = -2\frac{1}{2}$ $y = \frac{-2}{2} = -1$

4. $3x + 2y + 5 \leq 0$

y	1/2	-5/2	-7
x	-2	0	3

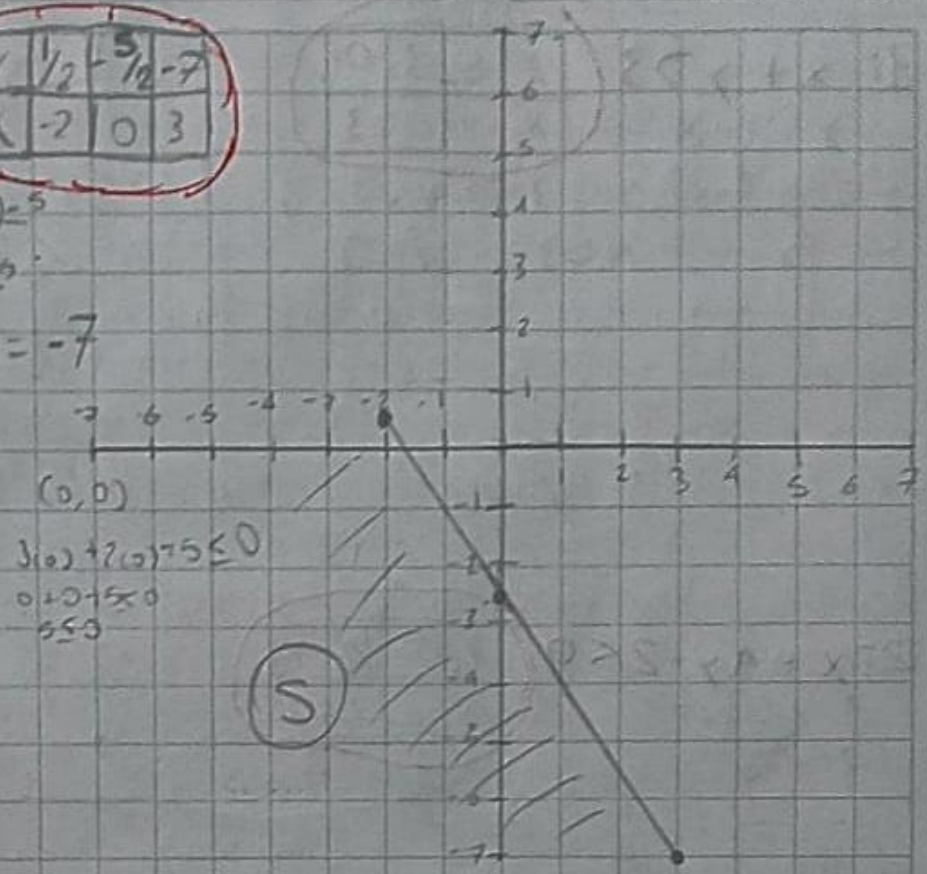
$2y \leq 0 - 3x - 5$

$y \leq \frac{-3x-5}{2}$

$y = \frac{-3(-2)-5}{2}$ $y = \frac{-3(0)-5}{2}$ $y = \frac{-3(3)-5}{2}$

$y = \frac{6-5}{2}$ $y = \frac{0-5}{2}$ $y = \frac{-9-5}{2}$

$y = 1/2$ $y = -5/2 = -2\frac{1}{2}$ $y = -14/2 = -7$



(0,0)

$3(0) + 2(0) + 5 \leq 0$

$0 + 0 + 5 \leq 0$

$5 \leq 0$

S

5. $5x - 4y \leq 8$

y	-9/2	-2	7/4
x	-2	0	3

$-4y \leq 8 - 5x$

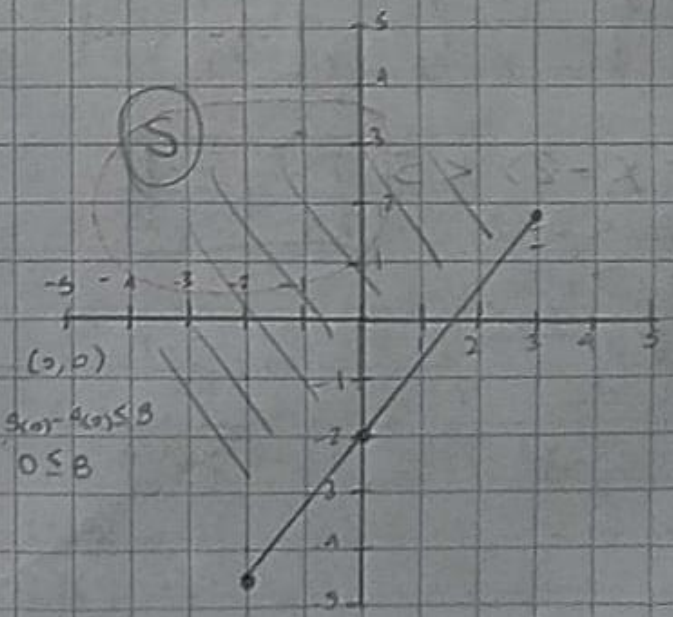
$4y \geq -8 + 5x$

$y \geq \frac{-8+5x}{4}$

$y = \frac{-8+5(-2)}{4}$ $y = \frac{-8+5(0)}{4}$ $y = \frac{-8+5(3)}{4}$

$y = \frac{-8-10}{4}$ $y = \frac{-8+0}{4}$ $y = \frac{-8+15}{4}$

$y = \frac{-18}{4} = -\frac{9}{2} = -4\frac{1}{2}$ $y = -8/4 = -2$ $y = \frac{7}{4} = 1\frac{3}{4}$



(0,0)

$5(0) - 4(0) \leq 8$

$0 \leq 8$

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6. $x - 2y > 0$

y	-1	0	3/2
x	-2	0	3

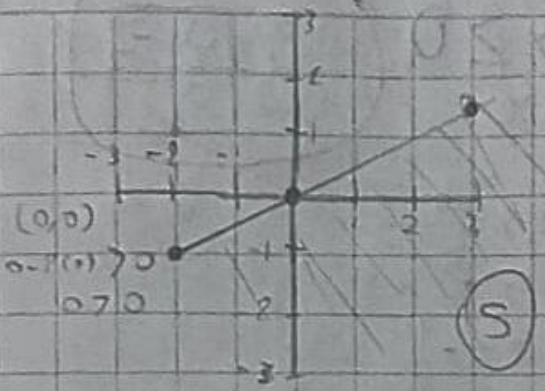
$-2y > 0 - x$

$2y < x$

$y < \frac{x}{2}$

$y = \frac{-2}{2}$ $y = \frac{0}{2}$ $y = \frac{3}{2}$

$y = -1$ $y = 0$ $y = 1\frac{1}{2}$



7. $-5x + 6y \leq 4$

y	-1	4/3	19/6
x	-2	0	3

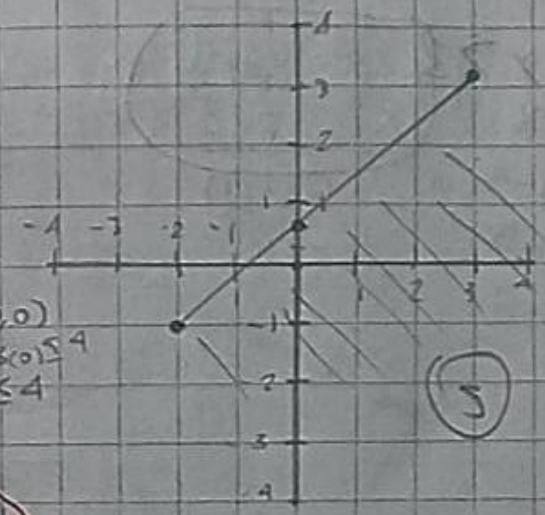
$6y \leq 4 + 5x$

$y \leq \frac{4+5x}{6}$

$y = \frac{4+5(-2)}{6}$ $y = \frac{4+5(0)}{6}$ $y = \frac{4+5(3)}{6}$

$y = \frac{4+(-10)}{6}$ $y = \frac{4}{6}$ $y = \frac{4+15}{6}$

$y = \frac{-6}{6} = -1$ $y = 2/3$ $y = \frac{19}{6} = 3\frac{1}{6}$



8. $4x - 3y > -1$

y	-7/3	1/3	13/3
x	-2	0	3

$-3y > -1 - 4x$

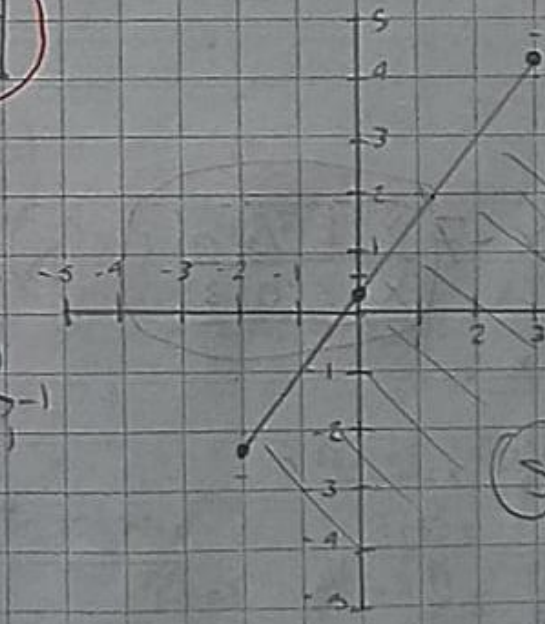
$3y < 1 + 4x$

$y < \frac{1+4x}{3}$

$y = \frac{1+4(-2)}{3}$ $y = \frac{1+4(0)}{3}$ $y = \frac{1+4(3)}{3}$

$y = \frac{1-8}{3}$ $y = \frac{1+0}{3}$ $y = \frac{1+12}{3}$

$y = \frac{-7}{3} = -2\frac{1}{3}$ $y = 1/3$ $y = \frac{13}{3} = 4\frac{1}{3}$



9. $3x + 9y \geq 0$

y	2/3	0	-1
x	-2	0	3

$9y \geq 0 - 3x$

$y \geq \frac{-3x}{9}$

$y = \frac{-3(-2)}{9}$ $y = \frac{-3(0)}{9}$ $y = \frac{-3(3)}{9}$

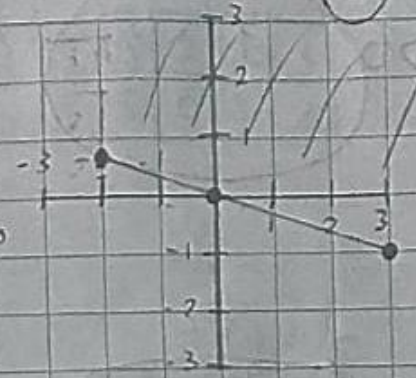
$y = \frac{6}{9}$ $y = \frac{0}{9}$ $x = \frac{-9}{9}$

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

(0,0)

$3(0) + 9(0) \geq 0$

$0 \geq 0$



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10. $5 - x + y > 1$

y	-6	-4	-1
x	-2	0	3

$y > 1 - 5 + x$

$y = 1 - 5 + (-2)$ $y = 1 - 5 + (0)$ $y = 1 - 5 + (3)$

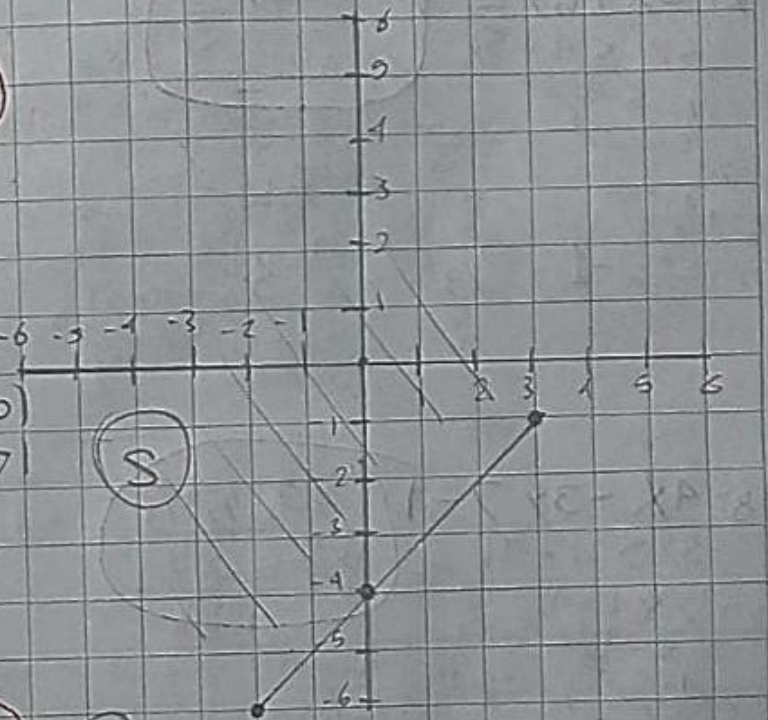
$y = 1 - 7$ $y = 1 - 5$ $y = -1$

$y = -6$ $y = -4$

(0,0)

$5 - 0 + 0 > 1$

$5 > 1$



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11. $2x \leq 3y - 7$

y	1	7/3	13/3
x	-2	0	3

$-3y \leq -7 - 2x$

$3y \geq 7 + 2x$

$y \geq \frac{7 + 2x}{3}$

$y = \frac{7 + 2(-2)}{3}$ $y = \frac{7 + 2(0)}{3}$ $y = \frac{7 + 2(3)}{3}$

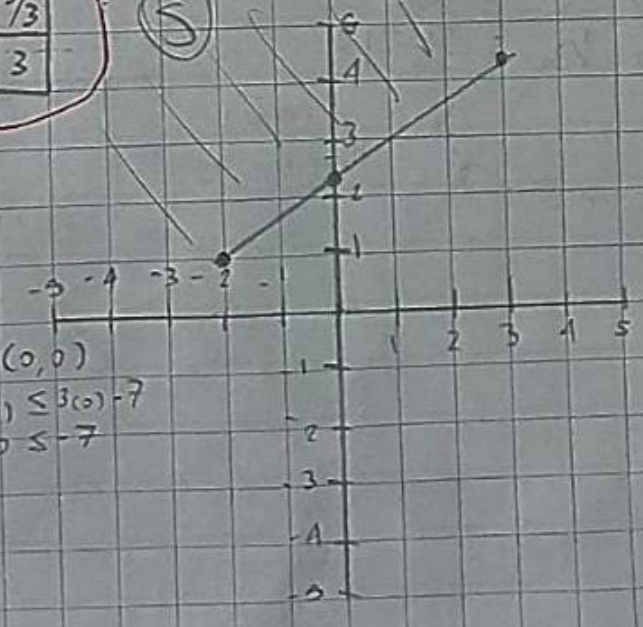
$y = \frac{7 - 4}{3}$ $y = \frac{7}{3}$ $y = \frac{7 + 6}{3}$

$y = \frac{3}{3} = 1$ $y = 2\frac{1}{3}$ $y = \frac{13}{3} = 4\frac{1}{3}$

(0,0)

$2(0) \leq 3(0) - 7$

$0 \leq -7$



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12: $-x + y \geq -2$

$x \geq -2 + x$

y	-4	-2	1
x	-2	0	3

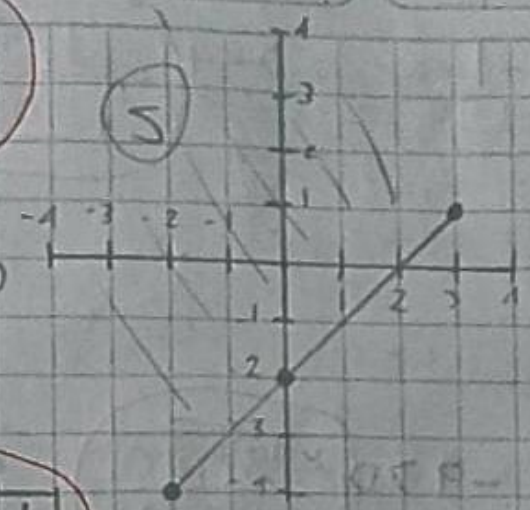
$y = -2 + (-2)$ $y = -2 + (0)$ $y = -2 + 3$

$y = -4$ $y = -2$ $y = 1$

(0,0)

$-0 + 0 \geq -2$

$0 \geq -2$



13: $3x + 6y - 8 < 0$

$6y < 0 - 3x + 8$

$y < \frac{-3x+8}{6}$

y	2/3	1/3	-1/6
x	-2	0	3

$y = \frac{-3(-2)+8}{6}$ $y = \frac{-3(0)+8}{6}$ $y = \frac{-3(3)+8}{6}$

$y = \frac{6+8}{6}$ $y = \frac{0+8}{6}$ $y = \frac{-9+8}{6}$

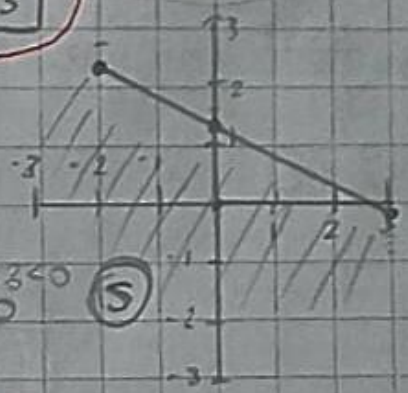
$y = \frac{14}{6} = \frac{7}{3}$ $y = \frac{8}{6} = \frac{4}{3}$ $y = \frac{-1}{6}$

$2\frac{1}{3}$ $1\frac{1}{3}$

(0,0)

$3(0) + 6(0) - 8 < 0$

$-8 < 0$



14: $3x + 8y - 4 \geq 0$

$8y \geq 0 - 3x + 4$

$y \geq \frac{-3x+4}{8}$

y	5/4	1/2	-5/8
x	-2	0	3

$y = \frac{-3(-2)+4}{8}$ $y = \frac{-3(0)+4}{8}$ $y = \frac{-3(3)+4}{8}$

$y = \frac{6+4}{8}$ $y = \frac{0+4}{8}$ $y = \frac{-9+4}{8}$

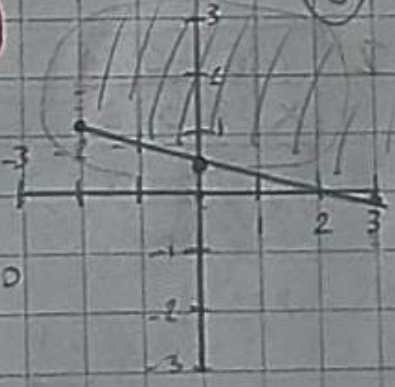
$y = \frac{10}{8} = \frac{5}{4}$ $y = \frac{4}{8}$ $y = \frac{-5}{8}$

$1\frac{1}{4}$ $y = 1/2$

(0,0)

$3(0) + 8(0) - 4 \geq 0$

$-4 \geq 0$



15: $\frac{x}{4} + \frac{y}{2} > -1$ $x + 2y > -4$

$2y > -4 - x$

$y > \frac{-4-x}{2}$

y	-1	-2	$-\frac{7}{2}$
x	-2	0	3

$y = \frac{-4+(-2)}{2}$ $y = \frac{-4-0}{2}$ $y = \frac{-4-3}{2}$

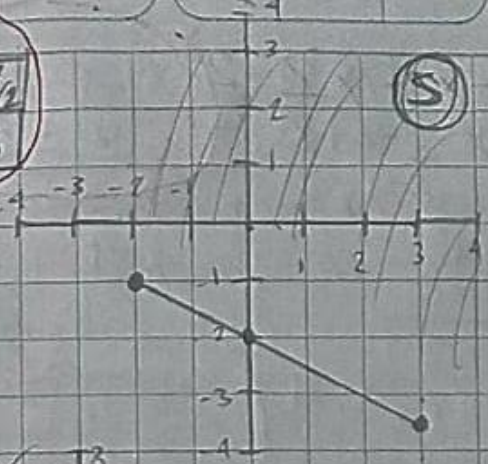
$y = \frac{-2}{2}$ $y = \frac{-4}{2}$ $y = \frac{-7}{2}$

$y = -1$ $y = -2$ $y = -3\frac{1}{2}$

(0,0)

$0 + 0 > -4$

$0 > -4$



16: $3x + 2y - 9 > 0$

$2y > 0 - 3x + 9$

$y > \frac{-3x+9}{2}$

y	$\frac{15}{2}$	$\frac{9}{2}$	0
x	-2	0	3

$y = \frac{-3(-2)+9}{2}$ $y = \frac{-3(0)+9}{2}$ $y = \frac{-3(3)+9}{2}$

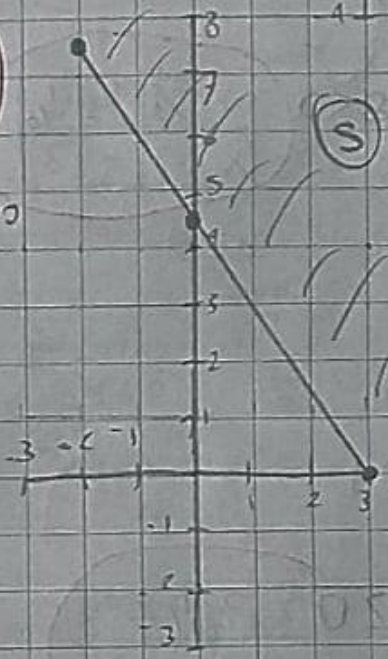
$y = \frac{6+9}{2}$ $y = \frac{9}{2}$ $y = \frac{-9+9}{2}$

$y = \frac{15}{2} = 7\frac{1}{2}$ $y = 4\frac{1}{2}$ $x = \frac{0}{2} = 0$

(0,0)

$3(0) + 2(0) - 9 > 0$

$-9 > 0$



17: $6x + y + 4 < -2$

$y < -2 - 6x - 4$

y	6	-6	-24
x	-2	0	3

$y = -2 - 6(-2) - 4$ $y = -2 - 6(0) - 4$ $y = -2 - 6(3) - 4$

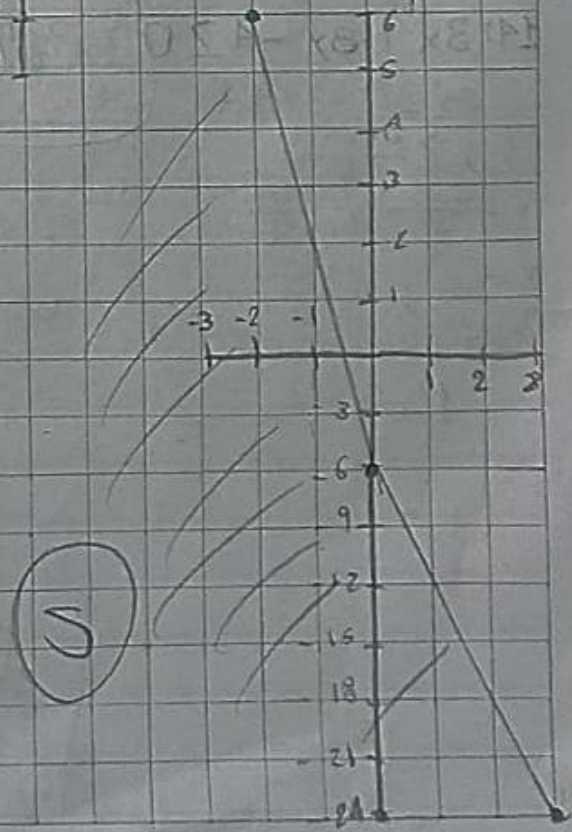
$y = -2 + 12 - 4$ $y = -2 - 4$ $y = -2 - 18 - 4$

$y = 6$ $y = -6$ $y = -24$

(0,0)

$6(0) + 0 + 4 < -2$

$4 < -2$



18. $5y \geq 10$

$y \geq 10/5$

$y \geq 2$

$[2, \infty)$

19. $3x < -12$

$x < -12/3$

$x < -4$

$(-\infty, -4)$