Name: _____ Date: _____

Learning Goal 0.2	**Expectations for algebra from previous years.**

Example Solve the one – dimensional inequality.

a. $-12x < 9 - 15x$

$+15x \quad +15x$

$\frac{3x}{3} < \frac{9}{3}$

$x < 3$

$0 < 9 - 3x$

$-9 \quad -9$

$\frac{-9}{-3} < \frac{-3x}{-3}$

$3 > x$

b. $\frac{7-2x}{3} \leq 4$

$3 \times \frac{7-2x}{3} \leq 4 \times 3$

$7 - 2x \leq 12$

$-7 \quad -7$

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

$x \geq -\frac{5}{2}$

c. $x^2 + 3x \leq 10 \Rightarrow x^2 + 3x - 10 \leq 0$

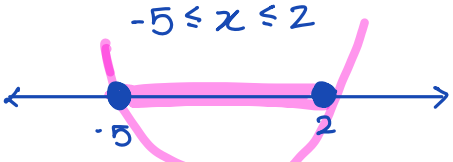
BOUNDARY

$x^2 + 3x - 10 = 0$

$(x+5)(x-2) = 0$

$x = -5 \quad x = 2$

$-5 \leq x \leq 2$



d. $3x^2 - 5x + 2 > 0$

BOUNDARY

$3x^2 - 5x + 2 = 0$

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

$3x(x-1) - 2(x-1) = 0$

$(x-1)(3x-2) = 0$

$x = 1 \quad x = \frac{2}{3}$

$x < \frac{2}{3}$

$x > 1$

e. $|4x + 5| > 9$

$+(4x+5) > 9$

$-5 \quad -5$

$4x > 4$

$x > 1$

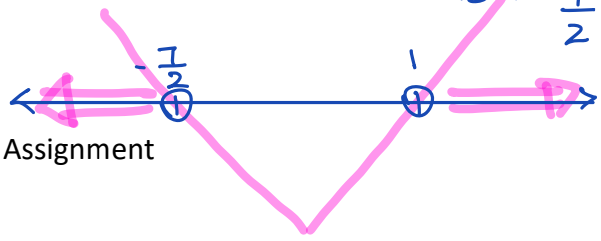
$-(4x+5) > 9$

$-4x - 5 > 9$

$-4x > 14$

$x < -\frac{14}{4}$

$x < -\frac{7}{2}$



f. $|7 - 2x| \leq 3$

$+(7-2x) \leq 3$

$-2x \leq -4$

$x \geq 2$

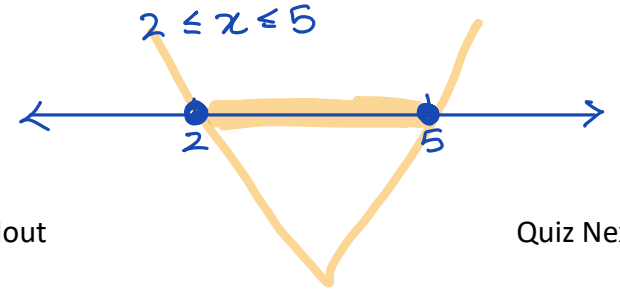
OR $-(7-2x) \leq 3$

$-7 + 2x \leq 3$

$2x \leq 10$

$x \leq 5$

$2 \leq x \leq 5$



Example Solve the two – dimensional inequality.

a. $y - 5 > -\frac{1}{2}(x+2)$

Slope - point form.

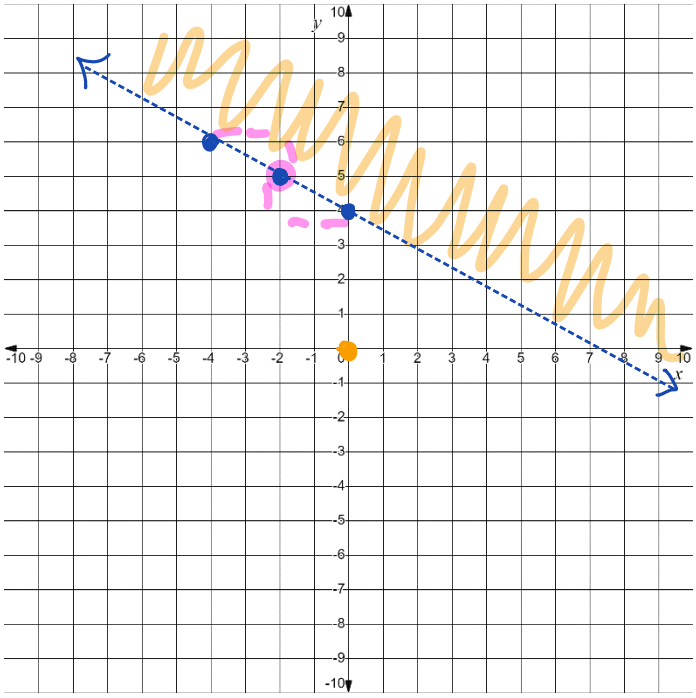
pt: $(-2, 5)$

$m = -\frac{1}{2} = \frac{1}{-2}$

TP: $(0,0)$

$0 - 5 > -\frac{1}{2}(0+2)$

$-5 > -1$



b. $y \leq \frac{1}{2}x^2 - 5x + \frac{11}{2}$

BOUNDARY

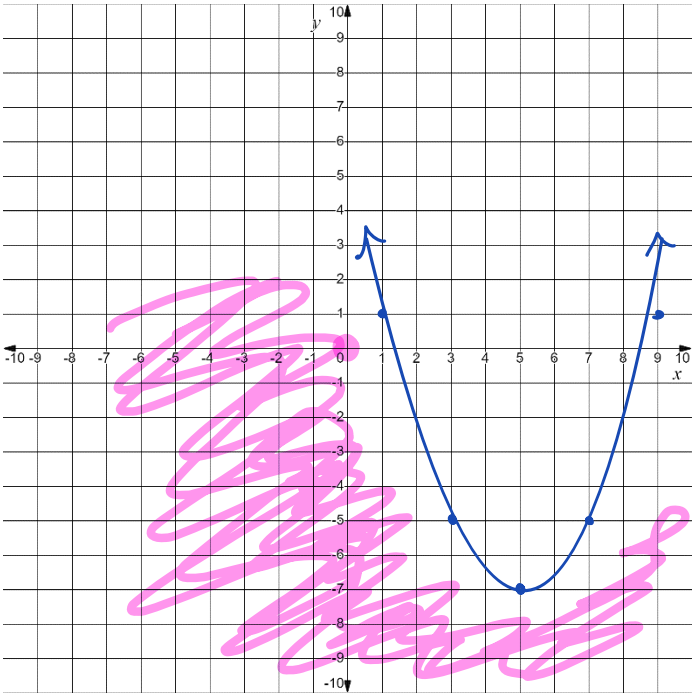
$\left(\frac{-10}{2}\right)^2 = (-5)^2 = 25$

$\frac{1}{2}(x^2 - 10x) + \frac{11}{2}$

$= \frac{1}{2}(x^2 - 10x + 25 - 25) + \frac{11}{2}$

$= \frac{1}{2}(x^2 - 10x + 25) - \frac{25}{2} + \frac{11}{2}$

$= \frac{1}{2}(x-5)^2 - 7$



TP $(0,0)$

$0 \leq \frac{1}{2}(0)^2 - 5(0) + \frac{11}{2}$