

Example: $3x - 2y \geq 12$

i) Graph $3x - 2y = 12$

$$y = 0 \rightarrow 3x - 2(0) = 12$$

$$x = 4$$

$(4, 0)$

$$x = 0 \rightarrow 3(0) - 2y = 12$$

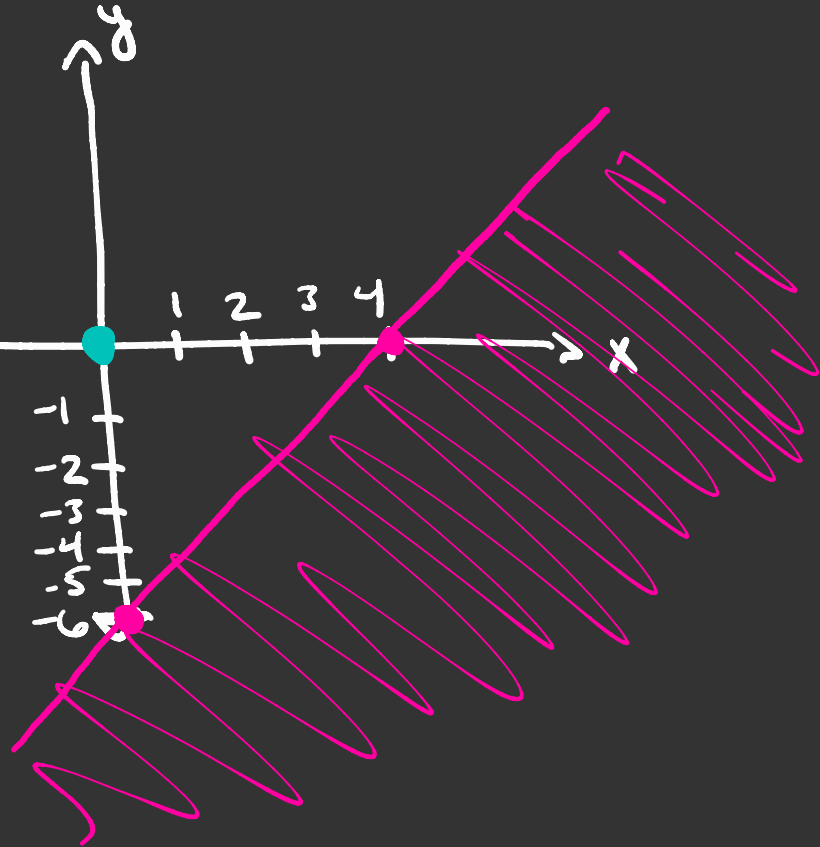
$$y = -6$$

$(0, -6)$

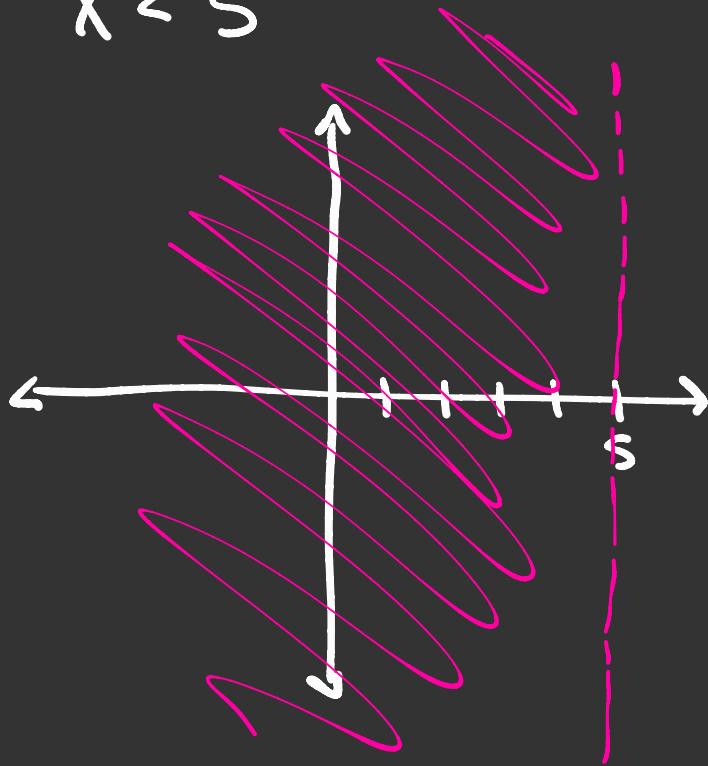
ii) Check $(0, 0)$

$$3(0) - 2(0) \geq 12$$

$$0 \geq 12 \quad \text{X}$$



Example : $X < 5$



System of linear inequalities:

$$2x + y \leq 10$$

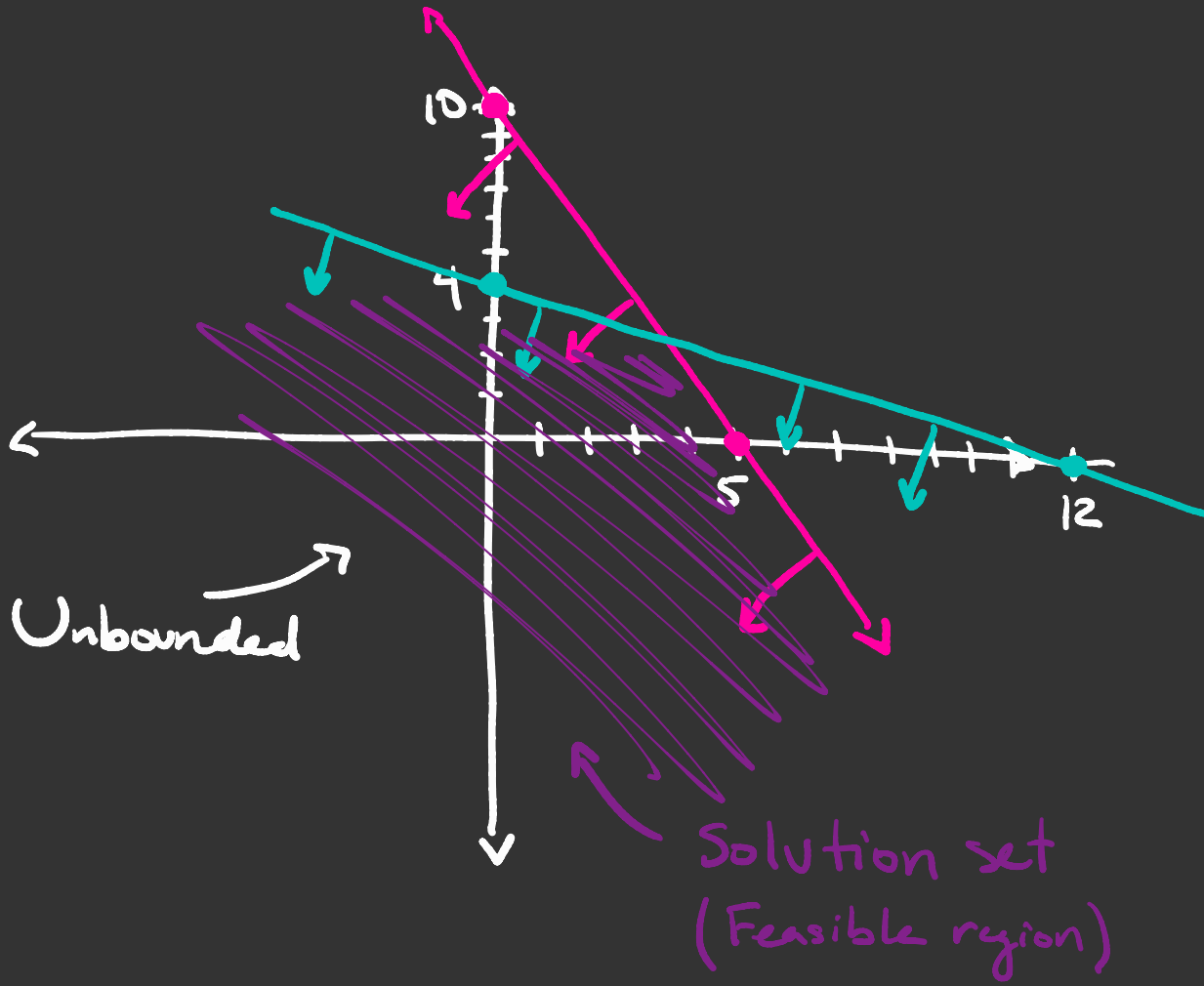
$$x + 3y \leq 12$$

Goal: Graph solutions to system



$$2x + y \leq 10$$

$$x + 3y \leq 12$$



Example: $x + y \leq 4$

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

$$x \geq 0, y \geq 0$$

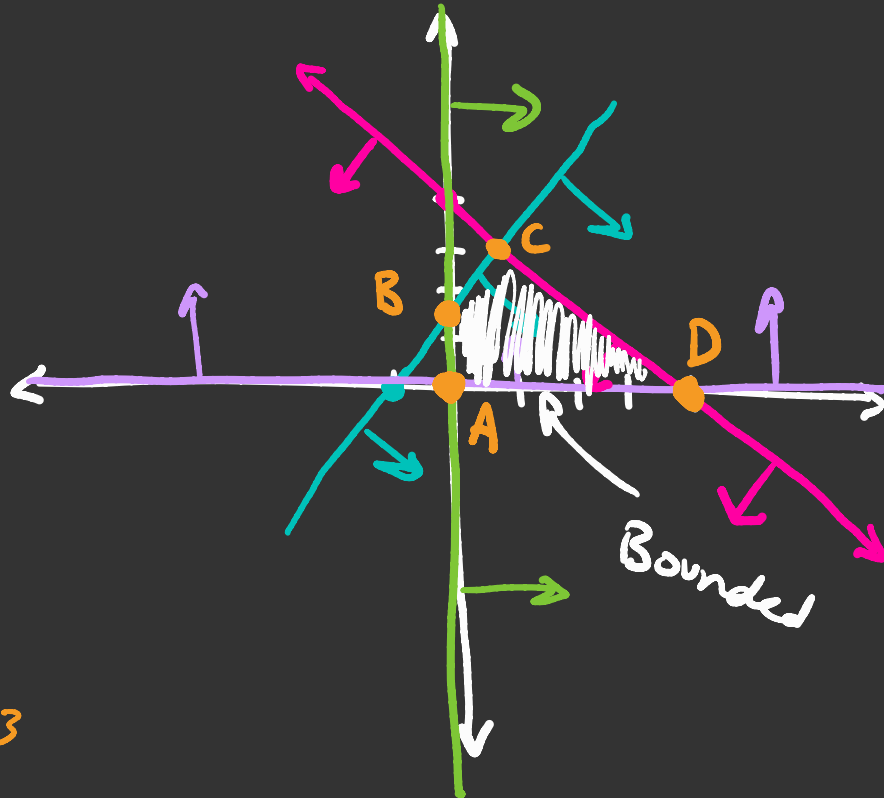
$$A = (0, 0)$$

$$B = (0, 3/2)$$

$$D = (4, 0) \quad C = (1, 3)$$

$$x + y = 4 \rightsquigarrow y = 4 - x$$
$$-3x + 2y = 3$$

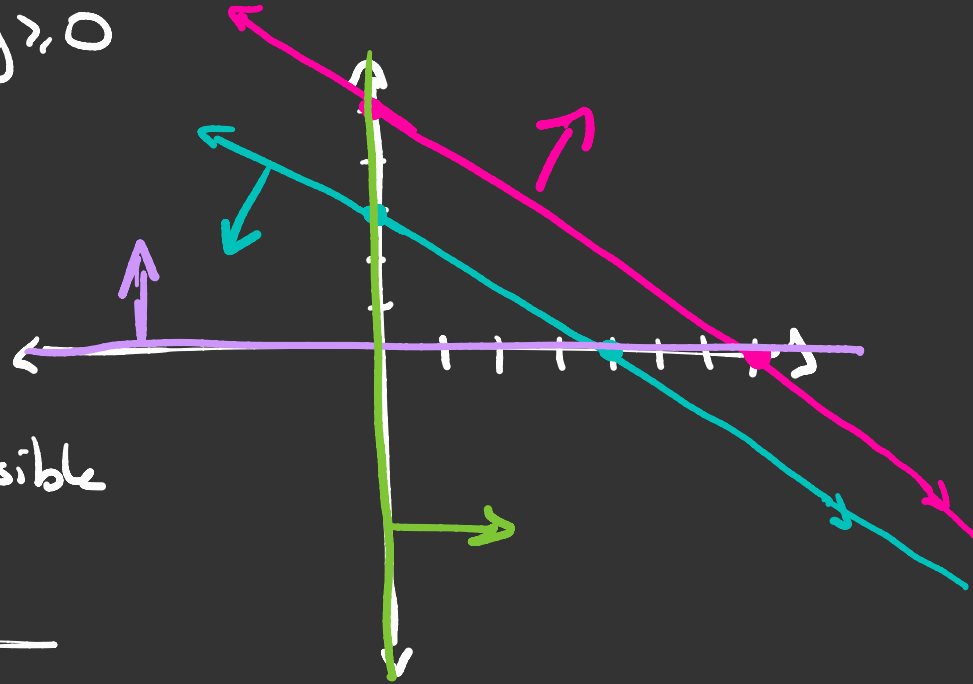
$$-3x + 2(4 - x) = 3 \rightsquigarrow -5x + 8 = 3$$
$$-3x + 8 - 2x = 3 \rightsquigarrow -5x = -5$$
$$x = 1$$



Example: $5x + 7y \geq 35$

$3x + 4y \leq 12$

$x \geq 0, y \geq 0$



No feasible
region

