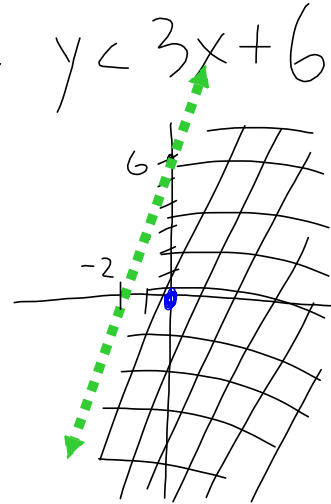


9.3 Quadratic Inequalities in 2 Variables

Compare $0 < 3x + 6$ & $y < 3x + 6$

$$\begin{aligned} -6 & \quad -6 \\ -6 & < 3x \\ \frac{-6}{3} & \quad \frac{\quad}{3} \\ -2 & < x \end{aligned}$$



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

$$0 < 6 \text{ True}$$

Compare $0 < x^2 - x - 12$ & $y < x^2 - x - 12$

$$0 = x^2 - x - 12$$

$$0 = (x - 4)(x + 3)$$

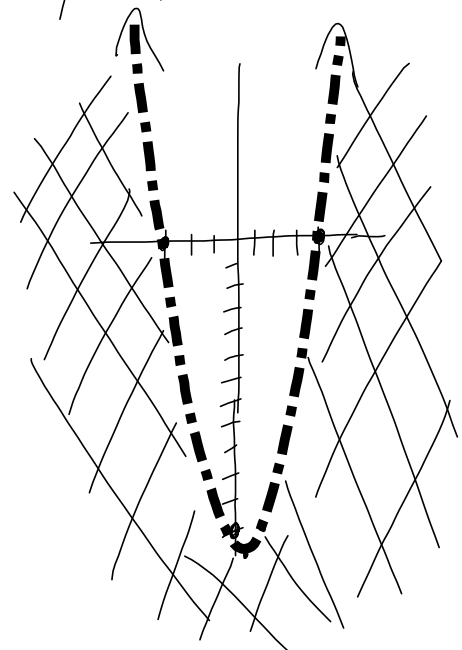
$$x = 4 \quad x = -3$$

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∪

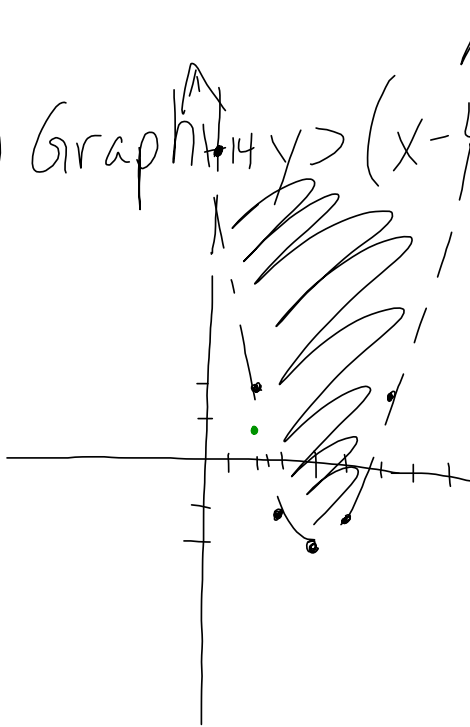
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$$x < -3, x > 4$$



ex) Graph $y > (x-4)^2 - 2$. Is $(2,1)$ a solution?

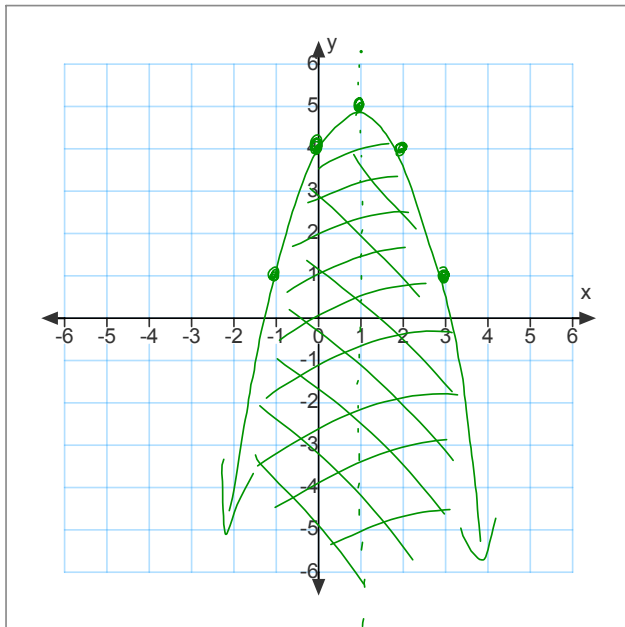


$$1 > (2-4)^2 - 2$$

$$1 > 2$$

NO

ex) Graph $y \leq -x^2 + 2x + 4$ $x = -b/2a$



$$= -2/2(-1)$$

$$= 1$$

$$y = -1^2 + 2(1) + 4 = 5$$

vertex (1, 5)

pg. 497 #3, 4 or 5, 6, 7, 8

pg. 500 #16, 17