

C11 - 7.4 - Quadratic Absolute Value Notes

$$y = |x^2 - 4|$$

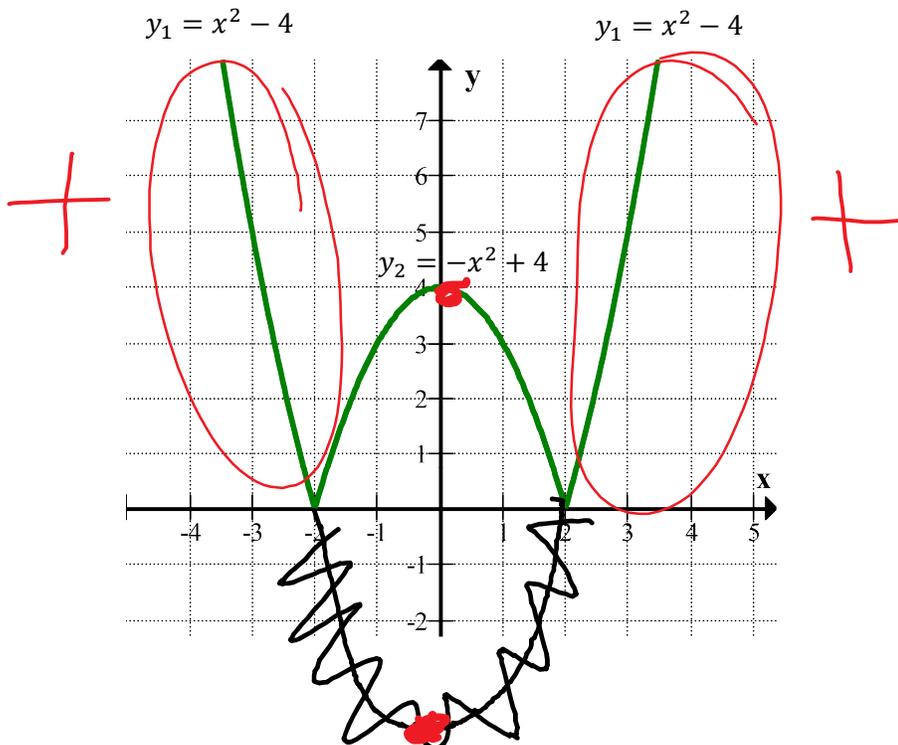
"+" case:

$$\begin{aligned} y_1 &= +(x^2 - 4) \\ y_1 &= x^2 - 4 \end{aligned}$$

"-" case:

$$\begin{aligned} y_2 &= -(x^2 - 4) \\ y_2 &= -x^2 + 4 \end{aligned}$$

$$y = |x^2 - 4|$$



Notice the graph of $y = |x^2 - 4|$ is the graph of $y_1 = x^2 - 4$ less than two and greater than two and is the graph of $y_2 = -x^2 + 4$ less than two and greater than negative two.

Piecewise function:

$$y = \begin{cases} x^2 - 4, & \text{if } x \geq 2, x \leq -2 \\ -x^2 + 4, & \text{if } -2 < x < 2 \end{cases}$$