

① point/removable hole

② asymptote (vertical)

③ jump

$$\frac{1}{x-1} \quad \text{V.A. } x=1$$



Note:  $\frac{x^2-4}{x-2} \rightarrow \frac{(x-2)(x+2)}{x-2}$

note @  $x=2$

$$\lim_{x \rightarrow -2} \frac{x^2 - 4}{|x + 2|} = \text{DNE} \quad x + 2 = 0$$

$$\rightarrow \boxed{x = -2}$$

$x > -2$

$x < -2$

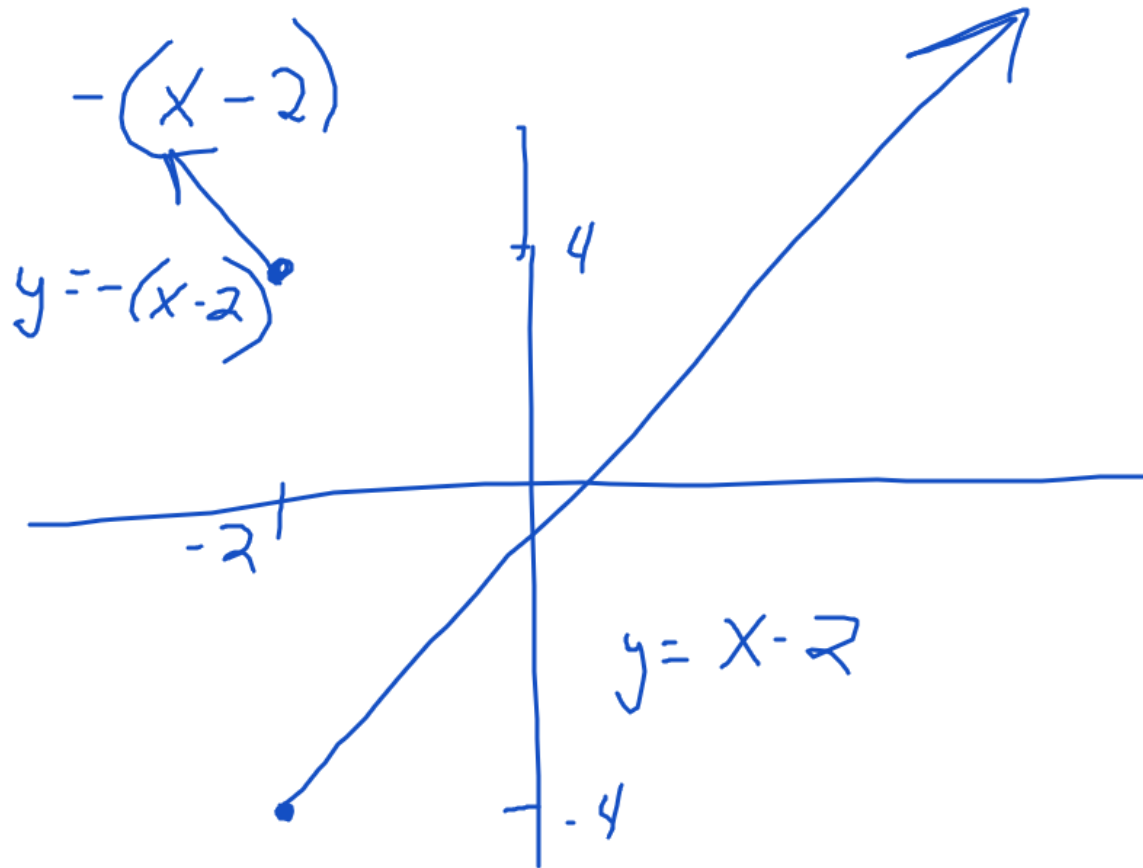
$$\lim_{x \rightarrow -2} \frac{x^2 - 4}{x + 2} \rightarrow \lim_{x \rightarrow -2} \frac{(x - 2)(\cancel{x + 2})}{\cancel{x + 2}}$$

$$\lim_{x \rightarrow -2^+} (x - 2) = \boxed{-4}$$

$$\lim_{x \rightarrow -2} \frac{x^2 - 4}{-(x + 2)} \rightarrow \lim_{x \rightarrow -2} \frac{(x - 2)(\cancel{x + 2})}{-\cancel{(x + 2)}}$$

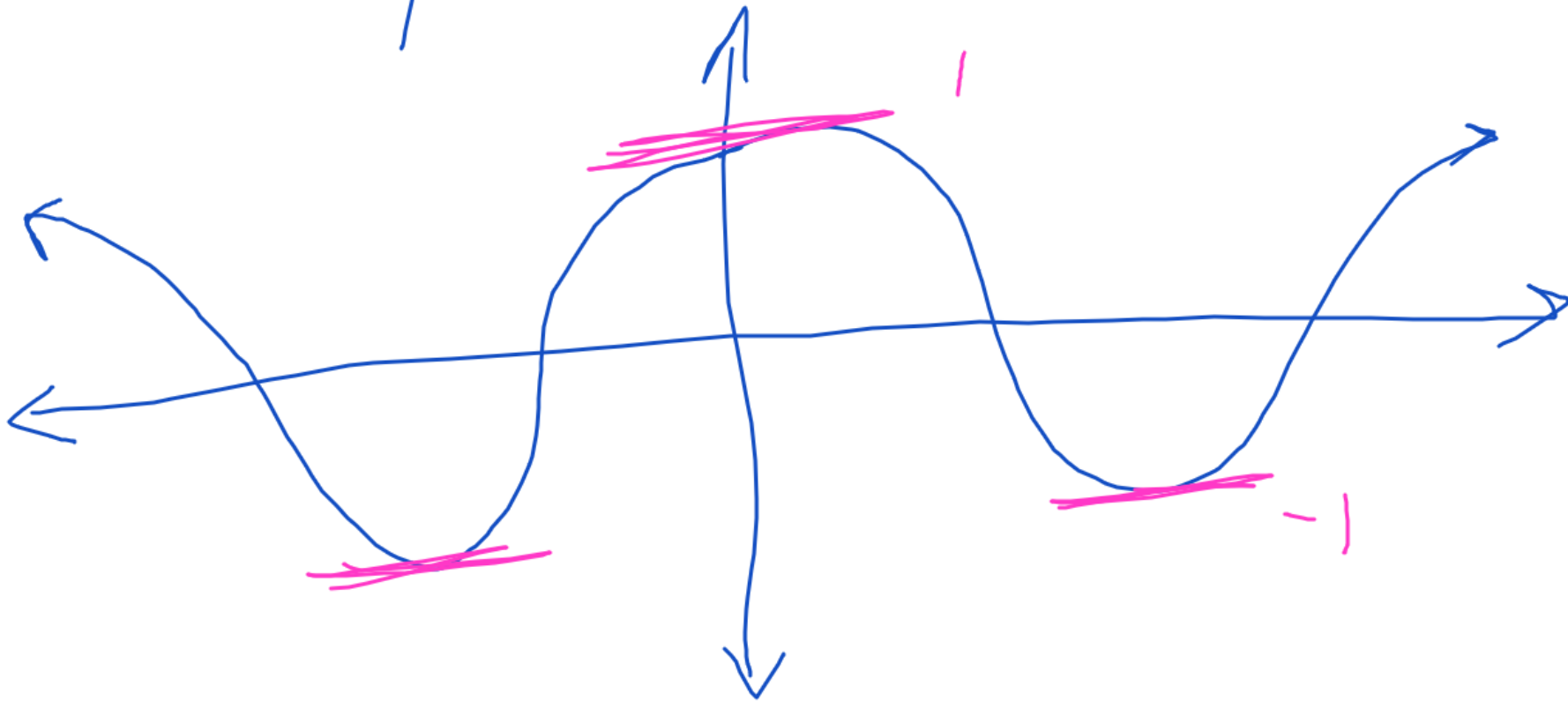
$$\lim_{x \rightarrow -2^-} -(x - 2) = \boxed{4}$$

$$\begin{cases} x > -2 & (x-2) \\ x < -2 & -(x-2) \end{cases}$$



Ex)  $\lim_{x \rightarrow 0} 4x \cos\left(\frac{1}{x^2}\right)$

$$-1 \leq \underbrace{\cos(\star)} \leq 1$$





HW 2 #14  $\downarrow$   $x=0$

$$\lim_{x \rightarrow -2} \frac{-6|x| + 12}{3x + 6}$$

$x > 0$   $\lim_{x \rightarrow -2} \frac{-6x + 12}{3x + 6}$

$x < 0$   $\lim_{x \rightarrow -2} \frac{6x + 12}{3x + 6}$

$\neq$