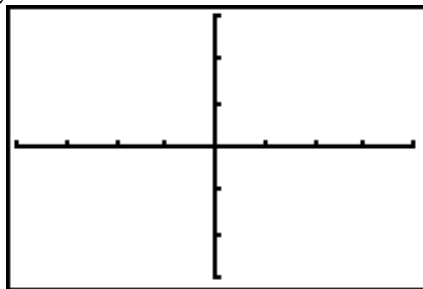


Name: _____

AP Calc BC

Limits Review

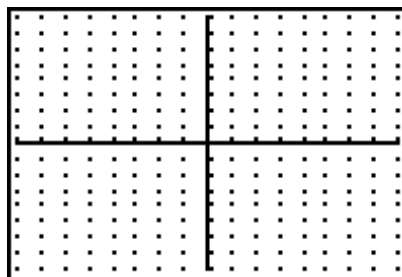
1. Sketch a function that has a removable discontinuity at $x = -2$, a jump discontinuity at $x = 0$, and an infinite discontinuity at $x = 2$.



2. Find the average rate of change of the function $y = 4x^2$ over the interval $[1, 5]$.

3. Let $f(x) = \begin{cases} \frac{1}{2}x + 3, & \text{if } x < 2 \\ -x^2 + 3x - 2, & \text{if } x \geq 2 \end{cases}$

- a. Sketch the graph



- b. Find $\lim_{x \rightarrow 2^+}$

- c. Find $\lim_{x \rightarrow 2^-}$

- d. Determine if $f(x)$ is continuous at $x = 2$
Show your work