

1. Find each limit. Include a table of values to illustrate your answer. Include two tables if you need to consider a two sided limit.

A.  $\lim_{y \rightarrow \infty} \frac{\sqrt{y^2 + 2}}{5y - 6} =$

B.  $\lim_{t \rightarrow 1^+} \frac{|1-t|}{1-t} =$

C.  $\lim_{x \rightarrow 0} (1+x)^{1/x} =$

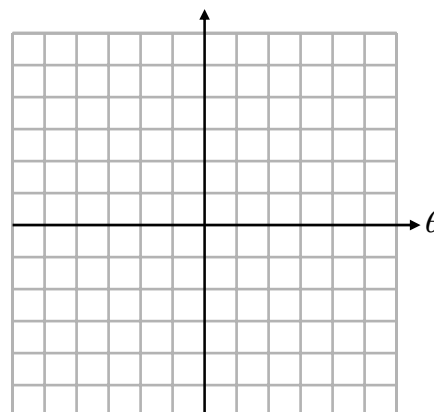
D.  $\lim_{\theta \rightarrow 0} \frac{\sin(2\theta)}{\theta} =$

2. Find each of these limits. Use the limits to sketch a graph. Be sure to include any asymptotes, holes, or other important characteristics.

$g(\theta) = \ln |\sin \theta|$

$\lim_{\theta \rightarrow n\pi^+} g(\theta) =$  For  $n = 0, \pm 1, \pm 2, \pm 3, \dots$

$\lim_{\theta \rightarrow n\pi^-} g(\theta) =$  For  $n = 0, \pm 1, \pm 2, \pm 3, \dots$



3. Find each of these limits. Use the limits to sketch a graph. Be sure to include any asymptotes, holes, or other important characteristics.

$$f(x) = \frac{x-2}{|x|-2}$$

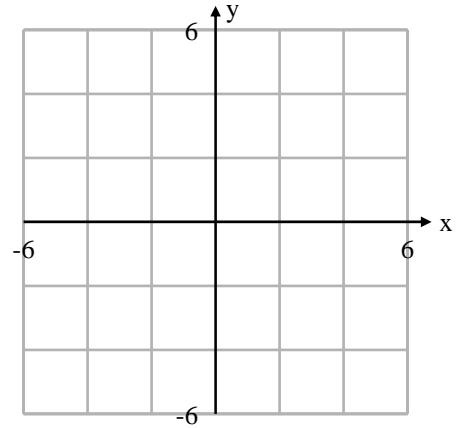
$$\lim_{x \rightarrow -\infty} f(x) =$$

$$\lim_{x \rightarrow \infty} f(x) =$$

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

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

$$\lim_{x \rightarrow 2} f(x) =$$



4. Find the value of  $k$  that would make the function continuous in each case.

$$\text{A. } g(x) = \begin{cases} \frac{e^x - 1}{x} & x \neq 0 \\ k & x = 0 \end{cases}$$

$$\text{B. } h(x) = \begin{cases} \frac{\sin(5\pi x) - 1}{2x - 1} & x \neq \frac{1}{2} \\ k & x = \frac{1}{2} \end{cases}$$

5. Find the value of  $k$  that would make the limit exist. Find the limit.

$$\text{A. } \lim_{x \rightarrow \infty} \frac{2x^3 - 6}{x^k + 3}$$

$$\text{B. } \lim_{x \rightarrow 2} \frac{x^2 + kx - 10}{x - 2}$$