

THIS IS AN ADDITIONAL ASSIGNMENT DUE ON _____
 assignment.

No late submissions or re-submissions on this

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1. Find each limit. Show your work/reasoning. If you are using your graphing calculator, include a clear sketch of the function.

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

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

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

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

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

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

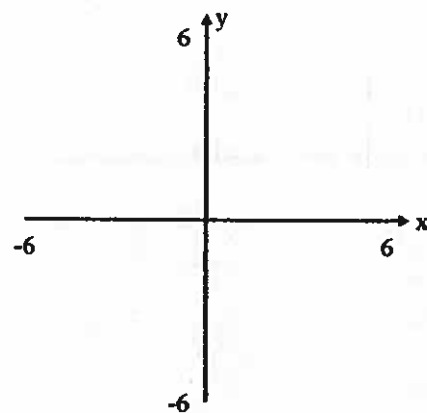
$\lim_{x \rightarrow \infty} f(x) =$

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

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

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

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

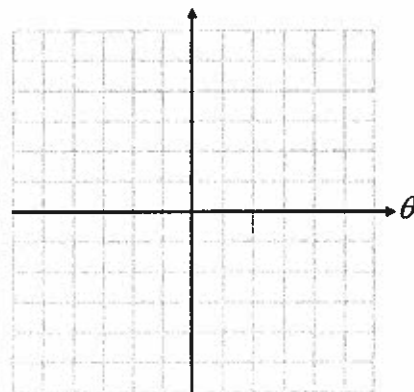


3. Find each of these limits. Use the limits to sketch a graph. Be sure to include any asymptotes, holes, or other important characteristics.

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

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

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

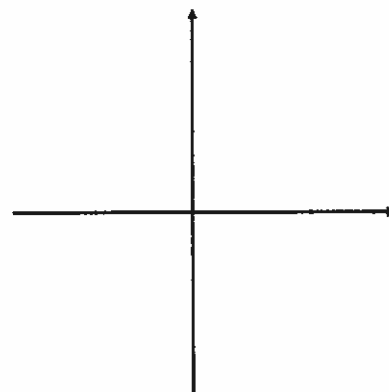


4. Find each of these limits. Use the limits to sketch a graph. Be sure to include any asymptotes, holes, or other important characteristics.

$$h(r) = e^{-r} \cos(2r)$$

$$\lim_{r \rightarrow -\infty} h(r) =$$

$$\lim_{r \rightarrow \infty} h(r) =$$



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

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

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

6. Find the value of k that would make the limit exist. Find the limit.

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

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

7. In each case sketch a graph with the given characteristics.

A. $f(4)$ is undefined and $\lim_{x \rightarrow 4} f(x) = 2$

B. $f(3) = 2$ and $\lim_{x \rightarrow 3} f(x)$ does not exist.

C. $f(1) = 3$ and $\lim_{x \rightarrow 1} f(x) = -2$

