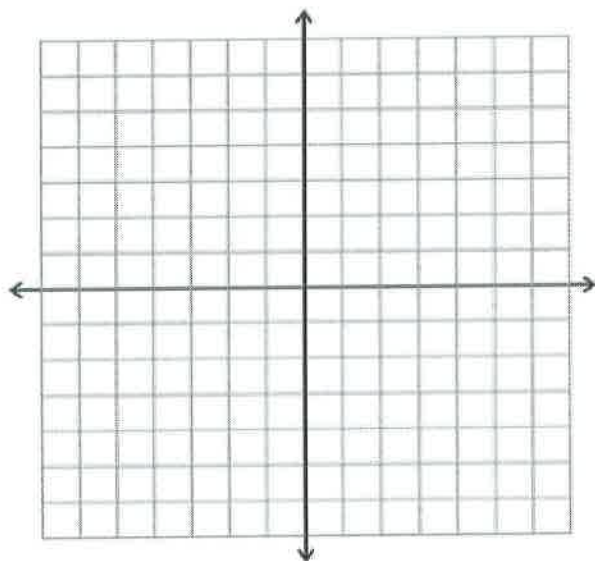


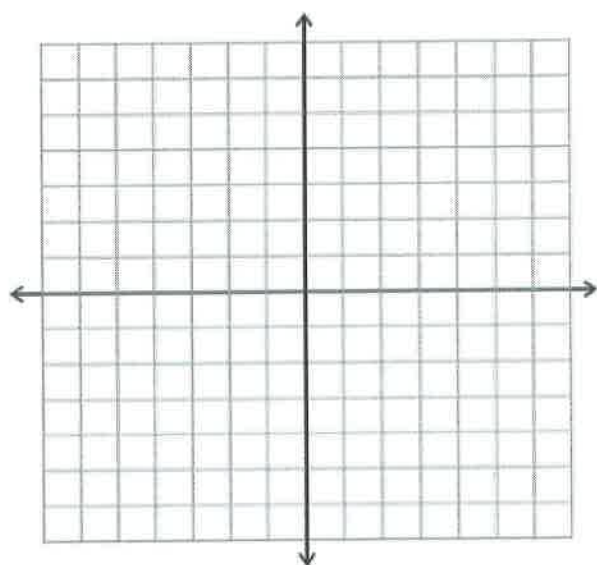
Squeeze theorem –Calculus

name: _____

1. Find $\lim_{x \rightarrow 0} \frac{\sin(x)}{x}$, by using squeeze theorem with the bounds of $\cos(x) \leq \sin(x) \leq x \leq 1$. Use a graph to model your answer.

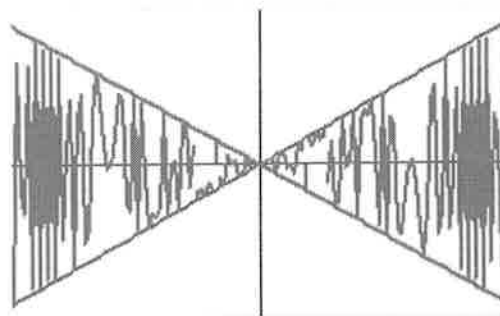


2. If $8 \cos\left(\frac{\pi x}{6}\right) \leq g(x) \leq \frac{-2\pi}{\sqrt{3}}(x - 2) + 4$ for all x near 2 except perhaps at $x=2$ itself, what is the value of $\lim_{x \rightarrow 2} g(x)$?



3. The graphs of the functions $f(x) = x$, $g(x) = -x$, and $h(x) = x \cos\left(\frac{50\pi}{x}\right)$ on the interval $-1 \leq x \leq 1$ are given at right.

Use the Squeeze Theorem to find $\lim_{x \rightarrow 0} x \cos\left(\frac{50\pi}{x}\right)$. Justify.



4. If $1 \leq f(x) \leq x^2 + 2x + 2$ for all x , find $\lim_{x \rightarrow -1} f(x)$. Justify.

5. If $-3 \cos(\pi x) \leq f(x) \leq x^3 + 2$, evaluate $\lim_{x \rightarrow 1} f(x)$. Justify.