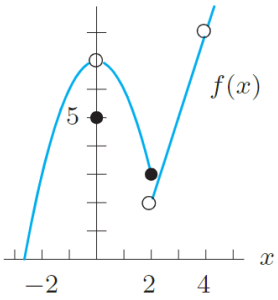
Full name(s): _____ .

Questions



1. Compute the following limits or state if they do not exist, referring to the figure above.
   - $\lim_{x\to -2} f(x)$
   - $\lim_{x\to 0} f(x)$
   - $\lim_{x\to 2} f(x)$
   - $\lim_{x\to 4} f(x)$
   - $\lim_{x\to 2^+} f(x)$
   - $\lim_{x\to 2^-} f(x)$
2. Use basic properties of limits to evaluate the following limits, or state if they do not exist.
   - $\lim_{x\to 4} \frac{x-4}{x^2-16}$
   - $\lim_{x\to 3} \frac{x^2-9}{x(x-3)}$
   - $\lim_{x\to 0} \sqrt{1+\frac{1}{1+x}}$
   - $\lim_{x\to \frac{\pi}{6}} \sin(x)\tan(x)$
   - $\lim_{x\to \frac{\pi}{2}} \frac{\sec(x)}{\tan(x)^2}$
3. Use a graphing tool to estimate the following limits, or state if they do not exist
   - $\lim_{x\to 0}(1+x)^{1/x}$
   - $\lim_{x\to 0} \frac{\sin(x)}{x}$
   - $\lim_{h\to 0} \frac{\cos(\pi/6+h)-\cos(\pi/6)}{h}$
4. Use ϵ-δ calculus to prove each of the following limits:
   - $\lim_{x\to 2} 3x - 1 = 5$
   - $\lim_{x\to \infty} \frac{1}{\sqrt{x}} = 0$
   - $\lim_{x\to 1} x^2 - x = 0$
   - $\lim_{x\to 2} x + \frac{1}{x} = 5/2$