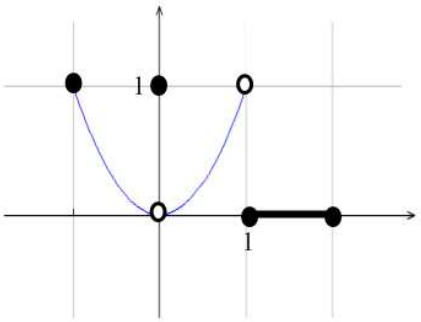
AP Calculus *name*_____*p*___
1.2 ws2

1. Using the graph below, decide whether each statement is true or false. If false, give the correct answer.



a) $\lim_{x\to -1^+} f(x)=1$ b) $\lim_{x\to 0^-} f(x)=0$

c) $\lim_{x\to 0^+} f(x)=1$ d) $\lim_{x\to 0^+} f(x)=\lim_{x\to 0^-} f(x)$

e) $\lim_{x\to 0} f(x)$ does not exist f) $\lim_{x\to 1^+} f(x)=1$

g) $\lim_{x\to 1^-} f(x)=1$ h) $\lim_{x\to 1} f(x)=1$

i) $\lim_{x\to 2^-} f(x)=2$ j) $f(1)=1$

2. Determine each limit.

a) $\lim_{x\to 0^+}[[x]]$ b) $\lim_{x\to 0^-}[[x]]$ c) $\lim_{x\to 0}[[x]]$

d) $\lim_{x\to 0.1}[[x]]$ e) $\lim_{x\to 2^-}[[x]]$ f) $\lim_{x\to -3^+}[[x]]$

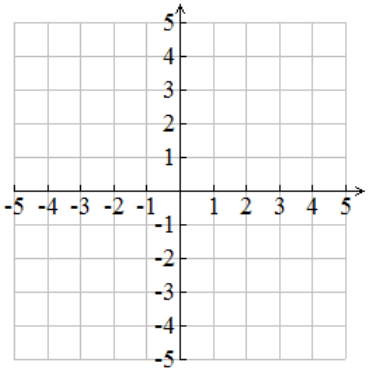
g) $\lim_{x\to 0^+}\frac{x}{|x|}$ h) $\lim_{x\to 0}\frac{x}{|x|}$ i) $\lim_{x\to 0}\frac{\sin x}{2x^2-x}$

3. Sketch the graph of $f(x)=\begin{cases}3-x, & x<2\\ \frac{x}{2}+1, & x>2\end{cases}$. Then find the following.

a) $\lim_{x\to 2^-} f(x)$

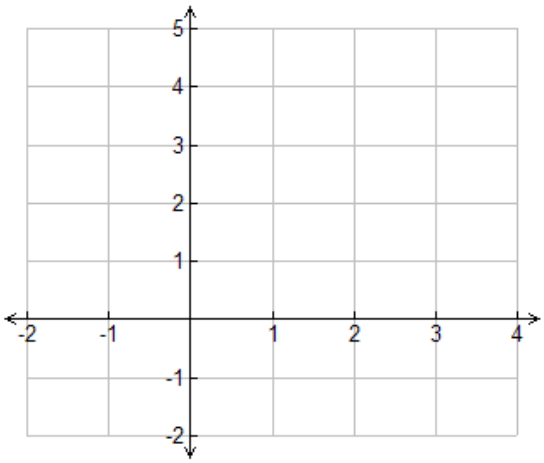
b) $\lim_{x\to 2^+} f(x)$

c) $\lim_{x\to 2} f(x)$



Sketch the graphs of the following functions. Then answer each question.

4. $g(x)=\begin{cases}3-x, & x<2\\ \dfrac{x}{2}, & x>2\\ 2, & x=2\end{cases}$

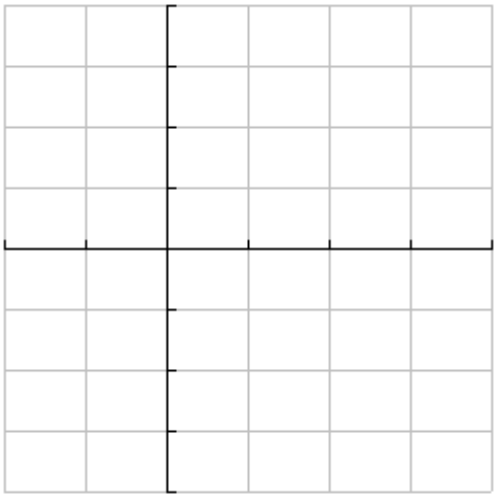


a) $\lim\limits_{x\to 2^-} g(x)$

b) $\lim\limits_{x\to 2^+} g(x)$

c) $\lim\limits_{x\to 2} g(x)$

5. $f(x)=\begin{cases}\sin x, & x<0\\ 1-\cos x, & 0\le x\le \pi\\ \cos x, & x>\pi\end{cases}$



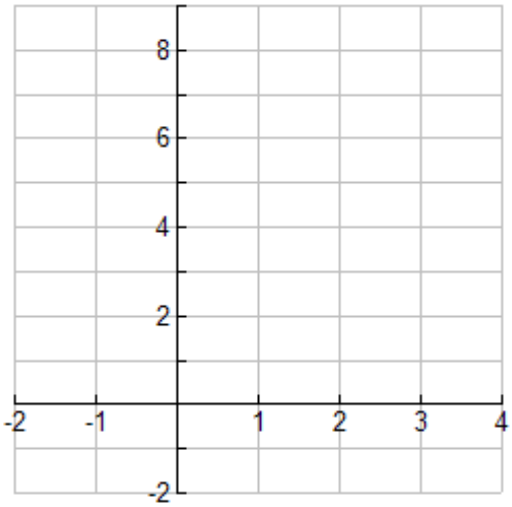
a) $\lim\limits_{x\to 0^-} f(x)$

b) $\lim\limits_{x\to 0^+} f(x)$

c) $\lim\limits_{x\to 0} f(x)$

d) $\lim\limits_{x\to \pi} f(x)$

6. $f(x)=\quad h(x)=\begin{cases}x, & x<0\\ x^2, & 0<x\le 2\\ 8-x, & x>2\end{cases}$



a) $\lim\limits_{x\to 0^-} h(x)$

b) $\lim\limits_{x\to 0^+} h(x)$

c) $\lim\limits_{x\to 0} h(x)$

d) $\lim\limits_{x\to 2} h(x)$