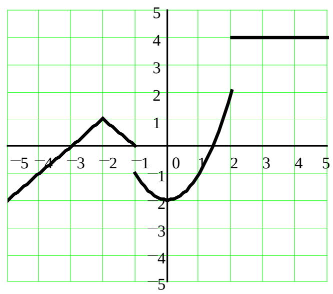
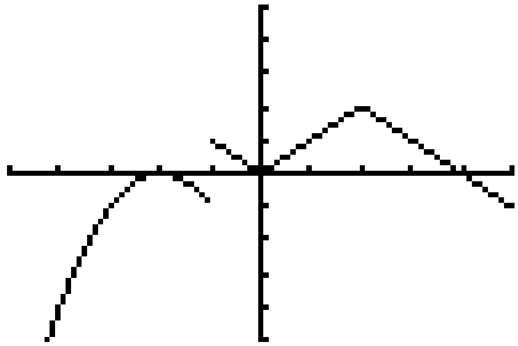
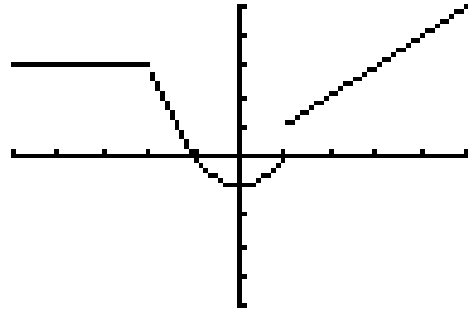
AP Calculus AB NAME___________________

HW2: Practice 2.2

1. *Find the following limits for the given graphs:*







a. $\lim_{x \to -1} f(x) =$

b. $\lim_{x \to 4} f(x) =$

c. $\lim_{x \to 0} f(x) =$

d. $\lim_{x \to 2^-} f(x) =$

e. $\lim_{x \to 2^+} f(x) =$

f. $\lim_{x \to 2} f(x) =$

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

h. $\lim_{x \to 1^+} f(x) =$

i. $\lim_{x \to 1} f(x) =$

a. $\lim_{x \to -1} f(x) =$

b. $\lim_{x \to 4} f(x) =$

c. $\lim_{x \to 0} f(x) =$

d. $\lim_{x \to 2^-} f(x) =$

e. $\lim_{x \to 2^+} f(x) =$

f. $\lim_{x \to 2} f(x) =$

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

h. $\lim_{x \to 1^+} f(x) =$

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e. $\lim_{x \to 2^+} f(x) =$

f. $\lim_{x \to 2} f(x) =$

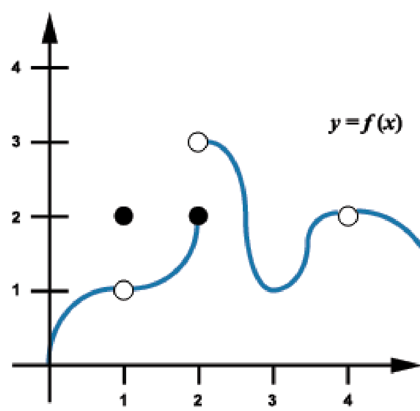
g. $\lim_{x \to 1^-} f(x) =$

h. $\lim_{x \to 1^+} f(x) =$

i. $\lim_{x \to 1} f(x) =$

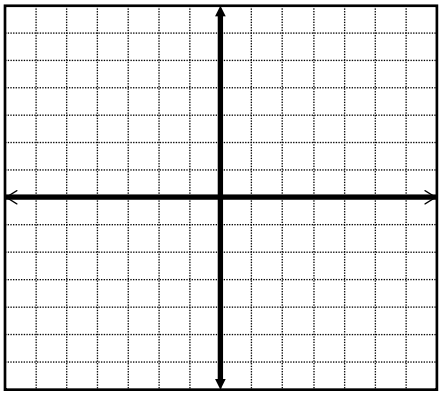
2. *The graph of f(x) is shown to the right. Find each of the following:*

$\lim_{x \to 1^-} f(x) =$	$\lim_{x \to 1^+} f(x) =$	$\lim_{x \to 1} f(x) =$
$\lim_{x \to 2^-} f(x) =$	$\lim_{x \to 2^+} f(x) =$	$\lim_{x \to 2} f(x) =$
$f(1) =$	$f(2) =$	$f(4) =$

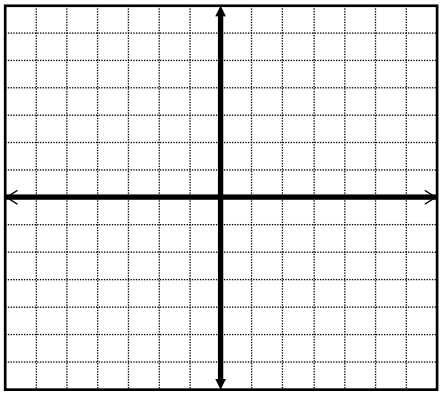


3. *Graph the function. Then use your graph to find the limit.*

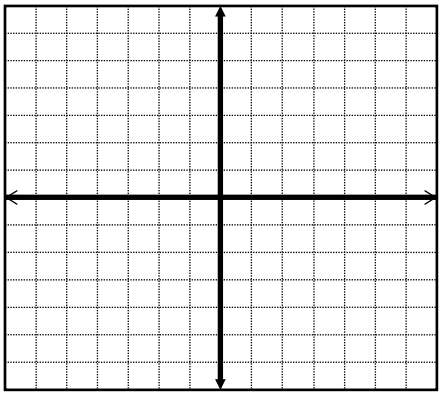
a. $f(x)=\dfrac{x^2-9}{x+3}$, $\lim\limits_{x\to -3} f(x)=$



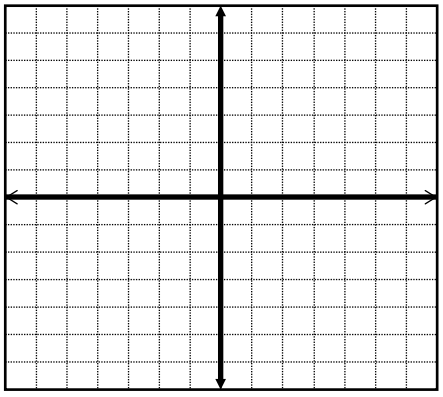
b. $f(x)=\begin{cases}-x & \text{if } x<0\\ \sin x & \text{if } x\geq 0\end{cases}$, $\lim\limits_{x\to 0} f(x)=$



c. $f(x)=\dfrac{x^2-4}{x-2}$, $\lim\limits_{x\to 2} f(x)=$



d. $f(x)=\begin{cases}3x & \text{if } x<1\\ x+2 & \text{if } x\geq 1\end{cases}$, $\lim\limits_{x\to 1} f(x)=$



4. Graph *the function. Then use your graph to find the limit.*

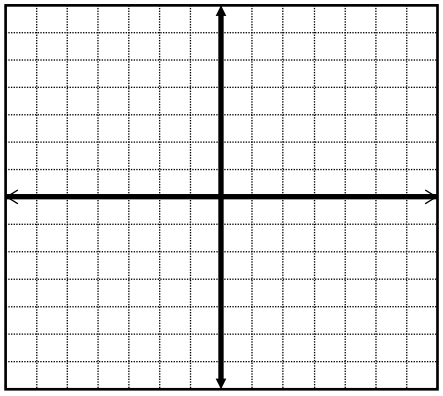
$f(x)=\dfrac{x^2-2x-3}{x+2}$

(a) $\lim\limits_{x\to -1} f(x)=$

(b) $\lim\limits_{x\to -2} f(x)=$

(c) $\lim\limits_{x\to -\infty} f(x)=$

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



5. Graph *the function. Then use your graph to find the limit.*

$$f(x)=\frac{3x^2-x}{x^2-x-6}$$

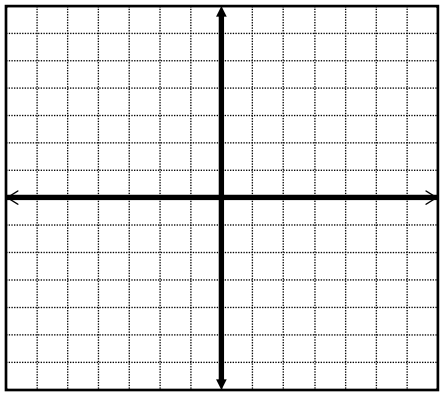
(a) $\lim_{x\to 0} f(x) =$

(b) $\lim_{x\to -2} f(x) =$

(c) $\lim_{x\to 3} f(x) =$

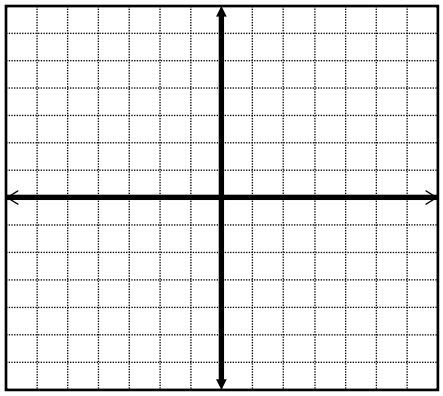
(d) $\lim_{x\to -\infty} f(x) =$

(e) $\lim_{x\to \infty} f(x) =$



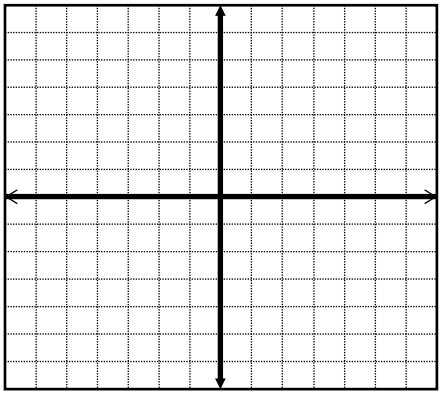
6. *Graph the function. Then use your graph to find all the values of x for which the limit does not exist.*

$$f(x)=\begin{cases} 2-x & \text{if } x<-1 \\ x & \text{if } -1\le x<1 \\ 4 & \text{if } x=1 \\ 4-x & \text{if } x>1 \end{cases}$$

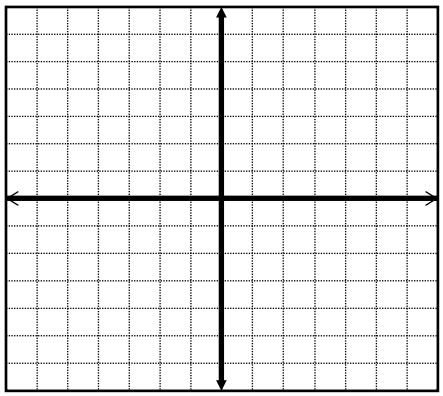


7. *Graph the function. Then use your graph to find the indicated limit.*

$f(x)=\csc x,\ \lim_{x\to 5} f(x) =$



8. Find all vertical asymptotes for $f(x) = \frac{x+1}{x^2-2x-3}$. For each vertical asymptote, describe the behavior of $f(x)$ near the asymptote.



9. *Construct a table to find each limit numerically.*

a. $\lim_{x\to 4} x^2 + 6x - 2 =$

x			$\rightarrow 4 \leftarrow$		
$f(x)$					

b. $\lim_{x\to 0} \frac{x+1}{x^2+1} =$

x			$\rightarrow 0 \leftarrow$		
$\frac{x+1}{x^2+1}$					

c. $\lim_{x\to 2} \frac{x-2}{x^2-4} =$

x			$\rightarrow 2 \leftarrow$		
$\frac{x-2}{x^2-4}$					