1.9 Connecting Multiple Representations of Limits

Calculus   Name: _____

CA #2

Evaluate each limit.

1. $\displaystyle\lim_{x\to 7^-}\frac{|x-7|}{x-7}$

2. $\displaystyle\lim_{x\to 8^+}\frac{x-8}{|x-8|}$

3. $\displaystyle\lim_{x\to -9^-}\frac{|x+9|}{x+9}$

4. $\displaystyle\lim_{x\to -1^+}\frac{x+1}{|x+1|}$

5. Let f be a piecewise function with two linear "pieces" where $\displaystyle\lim_{x\to 3}f(x)=5$. Which of the following could represent the function f?

a.
$$f(x)=\begin{cases}\dfrac{x^2+x-12}{x-3}, & x\neq 2\\ 7, & x=2\end{cases}$$

b.

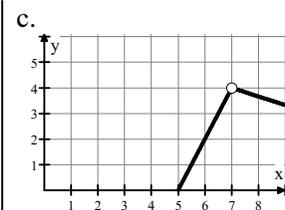| x	2.8	2.9	2.999	3	3.001	3.1
$f(x)$	4.7	4.9	4.999	5	6.001	6.1

c.
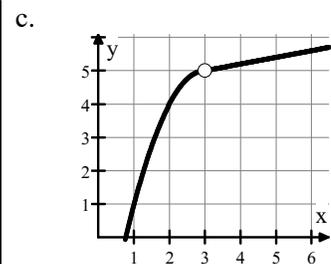
6. If f is a piecewise function with two linear "pieces" such that $\displaystyle\lim_{x\to 7}g(x)$ does not exist, which of the following could be representative of the function g?

a.
$$g(x)=\begin{cases}2x-1, & x\le 7\\ x+6, & x>7\end{cases}$$

b.

x	4	5	6	7	8	9	10
$g(x)$	5	2	-1	2	$-\dfrac{1}{3}$	$\dfrac{1}{3}$	1

c.

Answers to 1.9 CA #2

| 1. −1 | 2. 1 | 3. −1 | 4. 1 | 5a. no | 5b. no | 5c. yes | 6a. No | 6b. Yes | 6c. No |

Answers to 1.9 CA #2

1. −1	2. 1	3. −1	4. 1	5a. no	5b. no	5c. yes	6a. No	6b. Yes	6c. No