Non-Calculator
Multiple Choice Practice

Name_____
Date_____Period___

$f'(x) = \lim_{h\to 0} \frac{f(x+h)-f(x)}{h}$ & $f'(\#) = \lim_{h\to 0} \frac{f(\#+h)-f(\#)}{h}$

Formal definition of derivative

1. What is $\lim_{h\to 0} \frac{8\left(\frac{1}{2}+h\right)^8 - 8\left(\frac{1}{2}\right)^8}{h}$?

A. 0 B. $\frac{1}{2}$ C. 1

D. The limit does not exist E. Not enough information

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2. $\lim_{n\to\infty} \frac{4n^2}{n^2+10,000n}$ is

$\lim_{x\to\infty} f(x)$ = end behavior → marilyn → j-lo → dolly

A. 0 B. $\frac{1}{2,500}$ C. 1 D. 4 E. nonexistent

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3. $\lim_{x\to 0}(x\csc x)$ is

L'Hopitals Rule: $\frac{0}{0}, \frac{\infty}{\infty}$

$\lim_{x\to\#} \frac{f(x)}{g(x)} = \lim_{x\to\#} \frac{f'(x)}{g'(x)} = \lim_{x\to\#} \frac{f''(x)}{g''(x)} = \ldots$

A. $-\infty$ B. -1 C. 0 D. 1 E. ∞

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4. If $\lim_{x\to a} f(x) = L$, where L is a real number, which of the following must be true?

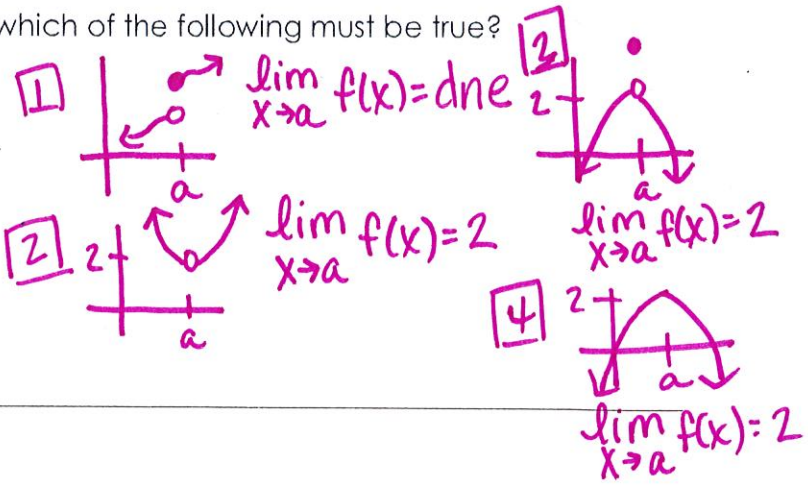
A. f'(a) exists

B. f(x) is continuous at x = a

C. f(x) is defined at x = a

D. f(a) = L

E. None of the above



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5. $\lim_{h\to 0} \frac{\sin(x+h)-\sin x}{h}$ is

A. 0 B. 1 C. sinx D. cosx E. nonexistent

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6. $\lim_{n\to\infty} \frac{3n^3-5n}{n^3-2n^2+1}$ is

A. -5 B. -2 C. 1 D. 3 E. nonexistent