Math 16a – Quiz 3

Section 113, September 18, 2007

Name:

Each question is worth 2 points. You have 15 minutes.

1. Let $f(x) = 1/x$. Which of the following is a correct expression for $f'(x)$?

   (a) $\lim_{h\to 0} \dfrac{\frac{1}{x+h} - \frac{1}{h}}{x-h}$

   (b) $\lim_{x\to 0} \dfrac{\frac{1}{x-h} - \frac{1}{x}}{x+h}$

   (c) $\lim_{h\to 0} \dfrac{\frac{1}{x+h} - \frac{1}{x}}{h}$

   (d) $\lim_{h\to 0} \dfrac{\frac{1}{x-h} - \frac{1}{h}}{x}$

   (e) $\lim_{h\to 0} \dfrac{\frac{1}{x} - \frac{1}{h}}{x-h}$

2. What is $\lim_{x\to 5} \dfrac{x^2-5}{x-5}$?

   (a) 0

   (b) 1

   (c) 2

   (d) 5

   (e) 10

   (f) does not exist

3. Let $f(x) = \begin{cases} x^2 & x < 1 \\ 2x-1 & x \geq 1 \end{cases}$. Circle the correct answer.

   (a) Is $f(x)$ continuous at $x = 1$? Y N

   (b) Is $f(x)$ differentiable at $x = 1$? Y N

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Each question is worth 2 points. You have 15 minutes.

1. Let $f(x) = 1/x$. Which of the following is a correct expression for $f'(x)$?

   (a) $\lim_{x \to 0} \dfrac{\frac{1}{x-h} - \frac{1}{x}}{x+h}$

   (b) $\lim_{h \to 0} \dfrac{\frac{1}{x+h} - \frac{1}{x}}{h}$

   (c) $\lim_{h \to 0} \dfrac{\frac{1}{x} - \frac{1}{h}}{x-h}$

   (d) $\lim_{h \to 0} \dfrac{\frac{1}{x-h} - \frac{1}{h}}{x}$

   (e) $\lim_{h \to 0} \dfrac{\frac{1}{x+h} - \frac{1}{h}}{x-h}$

2. What is $\lim_{x \to 7} \dfrac{x^2 - 7}{x - 7}$?

   (a) 0

   (b) 1

   (c) 2

   (d) 7

   (e) 14

   (f) does not exist

3. Let $f(x) = \begin{cases} x^2 & x < 1 \\ 2x - 1 & x \geq 1 \end{cases}$. Circle the correct answer.

   (a) Is $f(x)$ continuous at $x = 1$? Y N

   (b) Is $f(x)$ differentiable at $x = 1$? Y N

Math 16a – Quiz 3

Section 117, September 18, 2007

Name:

Each question is worth 2 points. You have 15 minutes.

1. Let $f(x) = 1/x$. Which of the following is a correct expression for $f'(x)$?

   (a) $\lim_{h\to 0} \dfrac{\frac{1}{x} - \frac{1}{h}}{x - h}$

   (b) $\lim_{h\to 0} \dfrac{\frac{1}{x-h} - \frac{1}{h}}{x}$

   (c) $\lim_{x\to 0} \dfrac{\frac{1}{x-h} - \frac{1}{x}}{x + h}$

   (d) $\lim_{h\to 0} \dfrac{\frac{1}{x+h} - \frac{1}{h}}{x - h}$

   (e) $\lim_{h\to 0} \dfrac{\frac{1}{x+h} - \frac{1}{x}}{h}$

2. What is $\lim_{x\to 6} \dfrac{x^2 - 6}{x - 6}$?

   (a) 0

   (b) 1

   (c) 2

   (d) 6

   (e) 12

   (f) does not exist

3. Let $f(x) = \begin{cases} x^2 & x < 1 \\ 2x - 1 & x \geq 1 \end{cases}$. Circle the correct answer.

   (a) Is $f(x)$ continuous at $x = 1$? Y N

   (b) Is $f(x)$ differentiable at $x = 1$? Y N