

Name \_\_\_\_\_

Mathematics 106ABC: Calculus II  
Fall Semester 2009  
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Quiz #2  
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If  $I = \int_1^4 \frac{1}{x^2} dx$ , the Fundamental Theorem of Calculus provides a value for  $I$ . According to Theorem 3 of the text, these approximation errors are bounded by:

$|I - L_n| \leq \frac{K_1(b-a)^2}{2n}$ , where  $K_1$  is any upper bound on  $[a, b]$  for  $|f'(x)|$ ,  $n$  is the number of subintervals, and  $a$ , and  $b$  are the limits of integration.

A. If  $f(x) = \frac{1}{x^2}$ ,  $|f'(x)| =$  \_\_\_\_\_ .

Compute an appropriate value for  $K_1 =$  \_\_\_\_\_ .

For  $n = 4$ ,  $a = 1$ ,  $b = 4$ ,  $\frac{K_1(b-a)^2}{2n} =$  \_\_\_\_\_ .