

Section 003 of Calculus Lab 2,  
Quiz of January 28, 2003  
10:00-10:15 a.m.

Name (clearly printed): \_\_\_\_\_

ID #: \_\_\_\_\_

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1. Carefully print MATHEMATICA input commands (one or two in number) for the evaluation of

$$\lim_{x \rightarrow 0} \frac{e^{(x^5)} + e^{(x^7)} - 2 - x^5 - x^7}{x^{10}}.$$

(In particular, since palettes are not available, write  $x^5$  for  $x^5$  etc.)

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2. For the function  $f(x)$  defined by

$$f(x) = \frac{x^{17} e^x \sin x}{x^2 + 1}, \quad \text{for any real number } x,$$

(a) print a suitable MATHEMATICA Input statement whose evaluation defines this function for the MATHEMATICA kernel;

(b) carefully print a MATHEMATICA Input statement for the direct evaluation of

$$\lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h};$$

(c) carefully print a MATHEMATICA Input statement whose evaluation yields the seventeenth derivative  $f^{(17)}(x)$  of  $f(x)$ .

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(End of Quiz)