# DEPARTMENT OF MATHEMATICS AND STATISTICS
## UNIVERSITY OF MASSACHUSETTS
## MATH 131 Spring 2004
## DERIVATIVES EXAM

**Your Section Number:** _____

**Your Instructor's Name:** _____

**Print Your Name:** _____

**Your ID Number:** _____

**Sign Your Name:** _____

For each function $y = f(x)$ given below, compute $dy/dx$. Please do **NOT** simplify your answers, and make sure that enough parentheses are used to clearly show groupings of terms (for example, do not write $x+2\cdot x-1$ if you mean $(x+2)\cdot(x-1)$).

This exam consists of 10 questions. It has 3 numbered pages. Each problem is worth 10 points. Unless indicated otherwise, it is not sufficient to just write the answers, and you must *show your work* to receive credit for a problem. Please **circle** or **box** your final answer for each problem.

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**Leave the spaces below empty!**

1. (10) _____          6. (10) _____

2. (10) _____          7. (10) _____

3. (10) _____          8. (10) _____

4. (10) _____          9. (10) _____

5. (10) _____          10. (10) _____

TOTAL (100)

1. $f(x) = x^7 - 6x^5 + x^2 - 10$

2. $f(x) = \dfrac{e^x - 1}{e^x + 1}$

3. $f(x) = e^{-x^2}$

4. $f(x) = x\cos(2x) + \dfrac{x}{x^2 - 1}$

5. $f(x) = \dfrac{\sqrt[3]{x}}{x^2 + 1}$

6. $f(x) = e^{\sec x} - \cot(e^x)$

7. $f(x) = \dfrac{x(2x - 1)^{10}}{(x^2 + 1)^7}$

8. $f(x) = \sin(\sin(\sin(x)))$

9. $f(x) = \sqrt[3]{\cot(e^x) + \sqrt{\tan(x)}}$

10. $xy + \sin(y^3) = x^2 - y^3$