

Attendance Quiz/Diagnostic Review Test for Lecture -1

NAME: (print!) _____ Section: _____

E-MAIL ADDRESS: (print!) _____

1. Compute $993 \cdot 1007$.
2. Simplify $2x \sin^2 5x + 2x \cos^2 5x - x$.
3. What is the largest value that the function $f(x) = x - x^2$ can take in the interval $0 \leq x \leq 1$. At what value of x does that happen?
4. What is the largest value that the function $f(x) = \frac{x}{e^x}$ can take when $x \geq 0$. At what value of x does that happen?
5. Evaluate $\int_0^1 x e^x dx$.
6. If $f(x, y, z) = xyz$, find its gradient, $\mathbf{grad} f$.
7. Find a function $y(x)$ such that
$$y''(x) + y(x) = 0 \quad , \quad y(0) = 1 \quad , \quad y'(0) = 1 \quad .$$