

This exam contains 4 pages (including this cover page) and 6 problems. Check to see if any pages are missing. Enter all requested information on the top of this page, and put your initials on the top of every page, in case the pages become separated.

You may *not* use your books, notes, or any calculator on this exam.

Name and section: _____

Instructor's name: _____

1. Mark box if true

☐ $2+2=4$

☐ $\frac{d}{dx}(x^2 + 1) = 2x + 1$

☐ The Moon is made of cheese.

2. Solve the equations

$$\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} \stackrel{\left[\frac{0}{0}\right]}{=} \lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2}$$

3. Differentiate $f(x) = x^2$ with respect to x .

4. Find the derivative of the function

$$f(x) = \int_{x^2}^2$$

5. Use the ε - δ definition of limit to prove that

$$\lim_{x \rightarrow 2} x^2 - 3x + 2 = 0$$

6. One of these things is not like the others; one of these things is not the same. Which one is different?

- ☐ John
- ☐ Paul
- ☐ Madeline