Calculus 1

Test 4

Form A

Spring 2016

Name: _____

Date: _____

READ THESE INSTRUCTIONS CAREFULLY!

- Circle or underline your final written answer.
- Justify your reasoning and show your work.
- If you run out of space, make a note and continue your work on the back of a page.

1. (10 pts.) Compute the following indefinite integral.

$$\int \frac{3x^2}{x^3 - 1} + e^x \, \mathrm{d}x$$

2. (10 pts.) Compute the following indefinite integral.

$$\int 3x^2 \cos(x^3 + 1) \, \mathrm{d}x$$

3. (10 pts.) Compute the following indefinite integral.

$$\int \frac{x^5 + 2x^2 - 1}{x^4} \, \mathrm{d}x$$

4. (10 pts.) Compute the following indefinite integral.

$$\int \frac{x^3 + 2x^2 - 9x - 18}{x - 3} \, \mathrm{d}x$$

5. (10 pts.) Compute the following definite integral.

$$\int_{-4}^{4} |2x^2 - 8| \, \mathrm{d}x$$

6. (10 pts.) Compute the following definite integral *exactly*.

$$\int_{-\pi/4}^{\pi/4} 6x^2 - \sec(x)\tan(x)\,\mathrm{d}x$$

7. (10 pts.) Find the value(s) of k such that

$$\int_0^k 3x^2 - 6x - 4\,\mathrm{d}x = -12.$$