Activity #9: Integration   **Calculus I**

1. Compute the following indefinite integral.
$$\int \frac{2x}{x^2 - 25}\, \mathrm{d}x$$

2. Evaluate the following indefinite integral.
$$\int x \cos(x^2 - 1)\, \mathrm{d}x$$

3. Evaluate the following indefinite integral.
$$\int \frac{\sec(x)\tan(x)}{2 + \sec x}\, \mathrm{d}x$$

4. Compute the following. (Hint: break up the integral.)

$$\int_{-3}^{3} |x^3 - 4x| \, dx$$

5. Solve the following system of equations for f.

$$\begin{cases} f'(x) = \cos(x) + 3x^2 \\ f(0) = 1 \end{cases}$$