Name:_____

Student Number:_____

Calculus 1; Fall 2001

Justify all your answers

1. Evaluate the following integrals:

$\int x^2(x^3+4)dx$

$\int \frac{x^4+2x^3}{x}dx$

$\int_0^\pi \sin(x)$

$\int \frac{x}{x^2+3}dx$

$\int \sec^2(5x)dx$

$\int (3-7x)^{7/2}dx$

$\int \frac{1}{9+9x^2}dx$

$\int x^2 \sec(x^3)\tan(x^3)dx$

2. Set up an upper Riemann Sum for $\int_0^2 (5x+4)dx$ using $n = 3$ rectangles.

3. Set up an integral determined by the following Riemann sum:

$$\sum_{i=1}^{n} \frac{2}{n}\left(\frac{2i}{n}\right)^5$$

4. Find the TOTAL area bounded by the graph of $y = x^2 - 1$ and the x-axis between $x = 0$ and $x = 5$.

5. Find

$$\frac{d \int_a^{x^3} \sin(t^2)dt}{dx}$$

Graph the function $y = \frac{x}{x^2-1}$. State ALL relevant information in the graph.