Perm number:

Test 2

Time: 50 minutes

1. Find the derivatives of the following functions:

(a) $\sin(3x)$

(d) $x^2 e^x$

(e) $\sqrt{x}\sin(3x)$

2. As of the census of 2000, there were 92,325 people, 35,605 households, and 18,941 families residing in the city of Santa Barbara. The per capita income for the city was \$26,466. Assuming that the average income per capita is increasing at the rate of \$1225 per year, and that the population is growing by roughly 630 new residents annually, what was the change in total income in Santa Barbara in 2000?

3. Find local minimas and local maximas of the function $f(x) = 3x^5 - 5x^3 + 3$.

4. Find an approximate value of $\sqrt{99999}$.