Math 2

Homework 3
Due: January 25, 2010

Please show all work.

1. Find the derivative of $f(x) = \int_1^x \arctan(t)dt$.

2. Find the derivative of $f(x) = \int_1^{\tan(x)} t^2 dt$.

3. Use the Second Fundamental Theorem of Calculus to evaluate the following definite integrals.

a. $\int_{-1}^{9} (3 + 5x)dx$

b. $\int_0^4 (x^2 + 5x - 2)dx$

c. $\int_1^5 (x^3 - 2)dx$

4. Evaluate the integral $\int_0^{\pi} e^x + 3\sin(x)dx$.