Name _____

Homework 21
Section 6.4

1. (3ea) Evaluate each of the following definite integrals.

   (a) $\displaystyle\int_{-1}^{3} 3x^2 - 6x + 2\,dx$

   (b) $\displaystyle\int_{1}^{9} \left(x + \frac{1}{\sqrt{x}}\right) dx$

(c) $\displaystyle\int_2^4 \frac{x^3+4}{x^2}\,dx$

(d) $\displaystyle\int_{-1}^3 2x\left(3x^2-7\right)\,dx$

2. (3) Given $g(x) = \dfrac{(9x-5)(2^x)}{(x^2+1)^3}$, use the Fundamental Theorem of Calculus to find $\displaystyle\int_0^1 g'(x)\,dx$.

3. (5) A startup car manufacturer has determined that the marginal cost to produce x cars can be modeled by the function $C'(x) = x - 12\sqrt{x} + 42$, where $C'(x)$ is in thousands of dollars per car. What is the total cost to produce 16 cars?