Name _____

Homework 23
Section 6.4

1. (5) Let $F(x) = \int_1^x (4 - t^2)\, dt$. Evaluate the following.

   (a) $F'(x)$

   (b) $F(2)$

   (c) $F(1)$

   (d) $F'(1)$

2. (5) Let $F(x) = \displaystyle\int_x^5 \cos(t^2)\, dt$. Compute $\frac{d}{dx}\left[F\left(\sqrt{x}\right)\right]$.

3. (4) Calculate $\dfrac{d}{dt}\left[\displaystyle\int_6^{-t} \left(1+x^2\right)^{3/2}\, dx\right]$.

4. (4,2) The *error function*, $\text{erf}(x)$, is defined as

$$\text{erf}(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2}\, dt.$$

(a) Compute $\frac{d}{dx}[\text{erf}(-2x)]$.

(b) Compute $\text{erf}'(\sqrt{x})$.