Name _____

Homework 37
section 6.4

1. (4) Let $F'(x) = \sin x \cos x$ and $F(0) = 1$. Complete the following table of values for $F(x)$, with estimates accurate to 3 decimal places.

x	0	1	2	3
$F(x)$				

2. (4) Recall that $\mathrm{Si}(x) = \int_0^x \frac{\sin t}{t}\, dt$. Compute $\frac{d}{dx}\left[\mathrm{Si}(x^2)\right]$.

3. (6) Calculate $\dfrac{d}{dx}\displaystyle\int_{\sin x}^{5} e^{t^2}\,dt$.

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

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

Compute $\frac{d}{dx}[\operatorname{erf}(\sqrt{x})]$.