

**Math 151**  
**Quiz 4**  
**Spring 2006**

Show all work in a neat and organized fashion. Clearly indicate your answers.  
20 points possible.

1. (4 pts.) Differentiate.

$$g(t) = t^5 \cos t$$

2. (4 pts.) Find the derivative.

$$y = \sec^3 x + \tan^5 x$$

3. (4 pts.) Suppose  $f$  and  $g$  are the functions whose graphs are shown on the supplemental page. Let  $u(x) = f(g(x))$ . Find  $u'(3)$ , if it exists. If it does not exist, explain why.

4. (4 pts.) Find  $\frac{dy}{dx}$ .

$$x^3 + x^2y + 4y^2 = 6$$

5. (4 pts.) Find  $\frac{d^2y}{dx^2}$ .

$$y = (x^5 + 1)^{2/3}$$