

MATH 151  
Mrs. Bonny Tighe

**QUIZ 3**  
3.3-3.5  
25 points

NAME \_\_\_\_\_

SECTION \_\_\_\_\_ Fri 2/24/06

1. Find  $dy/dx$  or  $f'(x)$ .

a)  $f(x) = 3x^3 - 2x + \frac{1}{x^2} + 4$

b)  $f(x) = x^2\sqrt{x} - \frac{2}{x\sqrt{x}}$

c)  $y = \frac{3\cos x - 2x^2}{\sin x - \tan x}$

f)  $f(x) = (3x^2 - \sec x)\left(\frac{1}{x^3} + 2x\right)$

2. If  $f(x) = \cos x - \tan x$ , find the following:

a)  $f(\frac{\pi}{3}) =$  \_\_\_\_\_ b)  $f(\frac{\pi}{4}) =$  \_\_\_\_\_ c)  $f'(\frac{\pi}{4}) =$  \_\_\_\_\_ d)  $f'(\pi) =$  \_\_\_\_\_

3. Find the limit.

a)  $\lim_{x \rightarrow 0} \frac{\sin 3x}{x} =$  \_\_\_\_\_ b)  $\lim_{\alpha \rightarrow 0} \frac{1 - \cos \alpha}{\sin 5\alpha} =$  \_\_\_\_\_ c)  $\lim_{x \rightarrow \frac{\pi}{2}^+} (\tan x) =$  \_\_\_\_\_

4. Find an equation of the tangent to the curve  $y = x(3\sqrt{x} - x)$  at the point (4, 8).

5. If

$f(2) = 1$ ,  $f'(2) = 3$ ,  $g(2) = 2$  and  $g'(2) = -1$ , find the following :

a)  $(f - g)'(2) =$  \_\_\_\_\_ b)  $(f/g)'(2) =$  \_\_\_\_\_ c)  $\left(\frac{g}{f+g}\right)'(2) =$  \_\_\_\_\_