Math 16A
Kouba
Worksheet 5

1. Differentiate. Do not simplify answers.

   a. $y = \sin(x^3)$

   b. $y = \sin^3 x$ (which can also be written $(\sin x)^3$)

   c. $y = \sin^3(x^3)$

   d. $f(x) = \cos(3 + \sqrt{x}) \sin^2(5x)$

   e. $g(x) = \cos(\sin^4(7x^3))$

   f. $y = \dfrac{\csc^3(5x)}{\cos^2(3x)}$

2. Find an equation of the line tangent to the graph of $y = \dfrac{\sin 2x}{\cos 3x + \tan x}$ at $x = \pi/6$.

3. Find the slope of the line perpendicular to the graph of $y = \sin(\pi/3 \tan 2x)$ at $x = \pi/8$.

4. Solve $f'(x) = 0$ for x , where $0 \le x \le 2\pi$.

   a. $f(x) = (1/2) \sin 2x + \sin x$ b. $f(x) = \cos^2 x + \sin x$