Name: _____

Trigonometric Function Differentiation

1) Find the derivative of each of the following functions.

(1) $f(x) = \sin x \cos x$

(2) $f(x) = 2x \sin x + \cos x$

(3) $f(x) = 2x - x^2 \tan x$

(4) $y = \csc x + \cot x$

(5) $y = \dfrac{\sin x}{1 + \cos x}$

(6) $y = \sin x\left(3\tan x + 6\sec x\right)$

(7) $y = \dfrac{\tan x}{1 - \sin x}$

2) Find the slope of the tangent line of each of the following functions at the given point

1) $f(x) = 2x \sin x + \cos x$ $\quad x = \pi$

2) $f(x) = 2x - x^2 \tan x$ $\quad x = \dfrac{\pi}{3}$

3) $y = \csc x + \cot x$ $\quad x = \dfrac{\pi}{4}$