

Calculus

Name: _____

HW #26: Unit 3.6 – Trig Derivatives

Date: _____ Period: _____

Find $\frac{dy}{dx}$ for each of the following functions.

1. $y = 2\sin x - \tan x$

2. $y = x \cdot \sec x$

3. $y = 3x + x \cdot \tan x$

4. $y = \frac{x}{1 + \cos x}$

5. $y = \frac{\cos x}{1 + \sin x}$

6. $y = \frac{4}{\cos x}$

7. Find an equation of the line tangent to the graph of $y = x^2 \cdot \sin x$ at $x = \frac{\pi}{2}$.

8. Find an equation of the line normal to the graph $y = \frac{\tan x}{x}$ at $x = \pi$.

9. Is there a value of b that will make $f(x) = \begin{cases} x+b, & x < 0 \\ \cos x, & x \geq 0 \end{cases}$ continuous at $x = 0$? Differentiable at $x = 0$?

Give reasons for your answers.