2.10 Derivatives of $\tan x$, $\cot x$, $\sec x$, and $\csc x$

CA #1

Calculus Name: _____

Find the derivative of each function.

1. $y = 4x - \tan x$

2. $h(x) = 3x \cot x$

3. $r = \dfrac{\theta}{\tan\theta}$

4. $g(x) = 4\sec x - \ln x$

5. $y = -5\csc x$

Find the derivative at the given x-value. Show your work!

6. $f(x) = 2\cot x$ at $x = \dfrac{3\pi}{4}$.

7. $f(x) = \csc x$ at $x = \dfrac{\pi}{3}$.

Estimate the derivative at the given x-value by using a calculator.

8. $f(x) = \cot^2\left(\dfrac{x}{5}\right)$ at $x = 0.2$.

9. $f(x) = -x\sec(7x)$ at $x = 1$.

Answers to 2.10 CA #1

1. $4 - \sec^2 x$	2. $3\cot x - 3x\csc^2 x$	3. $\frac{\tan\theta - \theta\sec^2\theta}{\tan^2\theta} = \cot\theta - \csc^2\theta$	4. $4\sec x\tan x - \frac{1}{x}$	
5. $5\csc x\cot x$	6. -4	7. $-\frac{2}{3}$	8. -6250.311	9. -9.4185