Calculus I

Derivatives Worksheet

Tuesday, February 22, 2011

Derivatives of Trigonometric Functions (Section 3.5)

1. Fill in each derivative.

$\dfrac{d}{dx}(\sin x) =$	$\dfrac{d}{dx}(\csc x) =$
$\dfrac{d}{dx}(\cos x) =$	$\dfrac{d}{dx}(\sec x) =$
$\dfrac{d}{dx}(\tan x) =$	$\dfrac{d}{dx}(\cot x) =$

2. Show that $\dfrac{d}{dx}\sec x = \sec x \tan x$.

3. Differentiate.

(a) $f(x) = 3\sin x - 15\cos x$

(b) $y = \tan x + 4x^2$

(c) $g(y) = \sec y + 4\csc y - 3\dfrac{\sin y}{\cos y}$

(d) $g(y) = \cos y \sin y$

(g) $y = \dfrac{1 + \cos x}{\sec x}$

(h) $f(\theta) = \dfrac{3\theta}{\cos \theta}$

(i) $k(x) = (2 - \sin x) \sin x$

(j) $h(t) = 3 \tan t \sec t$