



ICE - Sine and Cosine Derivatives

Calculate formulas for the first derivative of the functions given in the table below.

Function	Derivative
$f(x) = \frac{1}{\cos^2(x)}$	
$f(x) = \sqrt{1 - \sin^2(x)}$	
$f(x) = \tan(x) + 2^{\sin(x)}$	
$f(x) = \frac{\tan(x)}{\sin(x)}$	
$f(x) = \frac{1}{\sqrt{\cos(x)}}$	
$f(x) = \sin(1 - \sin^2(x))$	

Answers: (a) $f'(x) = 2 \cdot \sin(x) / [\cos(x)]^3$. (b) $f'(x) = -\sin(x) \cdot \cos(x) / [1 - \sin^2(x)]^{1/2}$.
(c) $f'(x) = 1/\cos^2(x) + \ln(2) \cdot \cos(x) \cdot 2^{\sin(x)}$. (d) $f'(x) = \sin(x)/\cos^2(x)$. (e) $f'(x) = 0.5 \cdot \sin(x) \cdot [\cos(x)]^{-3/2}$.
(f) $f'(x) = \cos(1 - \sin^2(x)) \cdot (-2 \cdot \sin(x) \cdot \cos(x))$.