KEY

Math 125-Quiz 16[1]
October 19, 2011

You have ten minutes to complete this quiz.

1. Determine $f'(x)$ for each function.

   (a) $f(x) = \tan(x)$

   $f'(x) = \sec^2 x$

   (b) $f(x) = x\sin(x)$

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

   (c) $f(x) = \cos(x) + \frac{1}{\cos(x)}$

   $f'(x) = -\sin x + \dfrac{\sin x}{\cos^2 x}$

2. We define $f(x) = \cot(x)$ by $\cot(x) = \frac{\cos(x)}{\sin(x)}$. Find $\frac{d}{dx}\cot(x)$ by using the quotient rule. (You'll need the identity $(\cos^2(x) + \sin^2(x) = 1)$

   $f(x) = \cot(x) = \dfrac{\cos x}{\sin x}$

   $f'(x) = \dfrac{\sin x(-\sin x) - \cos x(\cos x)}{\sin^2 x} = \dfrac{-(\sin^2 x + \cos^2 x)}{\sin^2 x}$

   $= \dfrac{-1}{\sin^2 x} = -\csc^2 x$

3. Which topics are you interested in seeing covered from Sections 3.7 and 3.8?

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[1]You are excused to leave when you're finished with this quiz.