Quiz 2   Calculus 1   10/3/2012

Each problem is worth 5 points. Clear and complete justification is required for full credit.

1.   If $f(x) = (e^x + x^3 - 5x + 7)(\sin x)$, what is $f'(x)$?

5

$(f'(x)g) + (g'(x) \cdot f(x))$

$$\boxed{(e^x + 3x^2 - 5)(\sin x) + (e^x + x^3 - 5x + 7)(\cos x)}$$

Wonderful!

you use the product rule which is

$f'(x)g(x) + F(x)g'(x)$

2.   If $g(x) = \cot x$, show that $g'(x) = -1/\sin^2 x$. [Hint: Remember $\cot x = \cos x / \sin x$.]

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

Nice Job

Quotient Rule:
$$\dfrac{f'(x)g(x) - f(x)g'(x)}{g^2}$$

$$\dfrac{(-\sin x)(\sin x) - (\cos x)(\cos x)}{(\sin x)^2}$$

$\sin^2 x + \cos^2 x = 1$

$$\dfrac{-\sin^2 x - \cos^2 x}{\sin^2 x}$$

$$\boxed{\dfrac{-1}{\sin^2 x}}$$