Quiz 1 Calc IV (Math2443-002) 6/4/2002

Each problem is worth 5 points. For full credit indicate clearly how you reached your answer.

1. If $y = x^3 \cos x$, find y'. PRODUCT RULES

$y' = 3x^2 \cos x + -\sin x \; x^3$

$y' = 3x^2 \cos x - x^3 \sin x$

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

$f(x) = x^3 \quad f'(x) = 3x^2$

$g(x) = \cos x \quad g'(x) = -\sin x$

$3x^2 \cos x + x^3(-\sin x)$

2. If $f(x) = \sqrt{x^2+1}$, find $f'(x)$.

$f(x) = (x^2+1)^{1/2}$

$f'(x) = \frac{1}{2}(x^2+1)^{-1/2}(2x)$

$= \frac{1}{2\sqrt{x^2+1}} \cdot (2x)$

$f'(x) = \frac{x}{\sqrt{x^2+1}}$

to find this d... ...e put in exp... form then use chain rule.