Name:
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Math 2B: Quiz 1

(5) **1.** Find the derivative $f'(x)$ for the following equation. $f(x) = \int_0^{x^2} cos(3t) + 1dt$

$f'(x) = 2x\left(cos(3x^2) + 1\right)$

(5) **2.** Evaluate the definite integral. $\int_0^2 x\sqrt{x^2+1}dx$ *Hint: Use a u substitution.*

Let $u = x^2 + 1$, then $du = 2xdx$,when $x = 0 \Rightarrow u = 1$ and when $x = 1 \Rightarrow u = 5$

$\Rightarrow \int_0^2 x\sqrt{x^2+1}dx = \frac{1}{2}\int_1^5 \sqrt{u}du = \frac{1}{3}u^{\frac{3}{2}}|_1^5 = \frac{1}{3}\left(5^{3/2} - 1\right)$