Score is 1 point each, plus 1 point for ~~at~~ being here. 5 possible

MAT 136 (Calculus I), Quiz 8, Prof. Jim Swift

Name: key

1. Evaluate $\frac{d}{dx}\sin(x^2+1)$ $= \cos(x^2+1)\cdot 2x$

This uses the chain rule, so $\frac{d}{dx}\sin(u(x)) = \cos(u(x))\cdot\frac{du}{dx}$.

or $\frac{d}{dx}\sin(u) = \cos(u)\cdot\frac{du}{dx}$

2. Recall that $\int f(x)\,dx = F(x)+C$, where $F'(x) = f(x)$.

Fill in the blank. $\int 1e^{2x} + x\,e^{2x}\cdot 2 \; dx = xe^{2x}+C$.

Note: $\frac{d}{dx}xe^{2x}$ goes in the blank. Use product rule.

3. Evaluate $\int \cos(2x)\,dx$ $= \frac{1}{2}\sin(2x) + C$

Since $\frac{d}{dx}\left[\frac{1}{2}\sin(2x)+C\right] = \frac{1}{2}\cdot\cos(2x)\cdot\cancel{\frac{d}{dx}(2x)}^{2} + 0 = \cos(2x)$

4. Evaluate $\int_0^1 \sqrt{x}\,dx$ $= \int_0^1 x^{\frac{1}{2}}\,dx = \left.\frac{x^{\frac{3}{2}}}{\frac{3}{2}}\right|_0^1 = \left.\frac{2}{3}x^{\frac{3}{2}}\right|_0^1$

$= \frac{2}{3}1^{3/2} - \frac{2}{3}\cdot 0^{3/2}$

$= \boxed{\frac{2}{3}}$

Note: I suggest you simplify the antiderivative before plugging in values of x.