MAT 136 (Calculus I) Prof. Swift
In-class worksheet: The Indefinite Integral, Part 2

1. Evaluate $\frac{d}{dt}\cos(t)$

2. Evaluate $\int \sin(t)\,dt$

3. Evaluate $\frac{d}{dx}e^{3x}$

4. Evaluate $\int e^{3x}\,dx$

5. Consider the function $f(x) = \dfrac{1}{x^2} - \dfrac{1}{x^3}$. Let $F(x)$ be the antiderivative of $f(x)$ with $F(1) = 0$. Find $F(x)$.

6. Solve the Initial Value Problem $\dfrac{dy}{dx} = \dfrac{1}{x^2} - \dfrac{1}{x^3}$, $y(1) = 0$.