1. (3 points) Calculate the following definite integral.

\[ \int_{0}^{1} 2^x \, dx \]

2. (3 points) Use u-substitution to evaluate the indefinite integral below. Let \( u = \cos x \).

\[ \int \sin x \cdot \sin(\cos x) \, dx = \]

3. (4 points) Calculate the following definite integral.

\[ \int_{0}^{1} x^2 (1 + 2x^3)^5 \, dx \]