Math 113: Quiz 10

Instructions: Answer all questions. Show all of your work. Partial credit may be given. The use of calculators is not allowed. Please turn off and put away all mobile electronic devices - accessing these devices between the time you receive your quiz and the time you turn in your quiz constitutes an honor code violation.

1. (3 pts) Find the most general antiderivative of

\[ f(x) = 5x^3 + \cos(3x) \]

\[ F(x) = \frac{5}{4}x^4 + \frac{1}{3}\sin(3x) + C \]

2. (3 pts) Find the most general antiderivative of

\[ f(x) = 2^x - 5e^{2x} + 1 \]

\[ F(x) = \frac{2^x}{\ln 2} - \frac{5}{2} e^{2x} + x + C \]

3. (4 pts) Find a function with the properties that \( f'(x) = 6x + 5 \) and \( f(1) = 7 \).

\[ f(x) = 3x^2 + 5x + C \]

\[ 7 = 3 + 5 + C \]

\[ C = -1 \]

\[ f(x) = 3x^2 + 5x - 1 \]