

Name \_\_\_\_\_

1. Evaluate the following indefinite integral.

$$\int (\ln(x) - 8x^3 + \sqrt{x} + e^{2x}) dx$$

Note: I actually meant to give the following integral. See if you can solve both. So far nobody has answered the above problem correctly.

$$\int \left( \frac{1}{x} - 8x^3 + \sqrt{x} + e^{2x} \right) dx$$

2. Find an explicit solution to the following initial value problem.

$$\frac{dw}{dt} = 6e^{3t}, \quad w(0) = 10$$

3. Find an explicit solution to the following initial value problem.

$$\frac{dP}{dt} = 0.5P, \quad P(0) = 60$$

4. Find an explicit solution to the following initial value problem.

$$\frac{dq}{dr} = \frac{10r^4}{q} \quad q(0) = 3$$