1. Compute the following indefinite integrals:

   (a) $\int (2x+3)dx$

   (b) $\int (-x^5)dx$

   (c) $\int e^{-6x}dx$

   (d) $\int (5x^n - 2^x)dx$

2. Solve the following differential equation:

$$f'(x) = x^2 - e^{-4x}$$

$$f(0) = 5$$

3. Mycelium spreads at a rate proportional to its current mass. Its mass doubles every month. If t is the number of months since the first measurement and $m(t)$ is the current mass, then this is modeled by

$$m'(t) = 2m(t).$$

Find the mass as a function of t, if there are 10 tons of mycelium after one year.

4. Do HW 3 and 4.

The End.