Warm-up Problems - January 17, 2006

1. Compute the following integrals:

   (a) \[ \int_{0}^{1} e^{-3x} \, dx = \]

   (b) \[ \int_{3}^{6} \frac{3}{t-2} \, dt = \]

   (c) \[ \int_{3}^{5} (5-3t)^4 \, dt = \]

2. Find the area between the curves

   (a) Between \( x^2 - 2x + 12 \) and \( y = 1 \) between \( x = -1 \) and \( x = 3 \).

   (b) Between \( y = -x^2 + 7x - 5 \) and \( y = 3x - 5 \).

   (c) Between \( y = x^3 \) and \( y = 6x^2 \).

3. Find the area between \( y = 12 - x^2 \), \( y = 4x \) and \( y = x \) that is in the first quadrant.