NAME AND SECTION:_____

INSTRUCTOR'S NAME:_____

1. Compute the following indefinite integrals using integration by parts:

   (a)
   $$F(x) = \int xe^{-x}dx$$

   (b)
   $$F(x) = \int x\ln(x)dx$$

   (c)
   $$F(x) = \int \arctan(x)dx$$

2. Using integration by parts <u>twice</u> compute the following indefinite integral:

$$F(x) = \int \sin(x)e^x dx$$

3. Using integration by parts compute the following indefinite integral:

$$F(x) = \int \cos^2(x)dx$$

Hint: You might need, <u>later in the problem</u>, the trigonometric identity

$$\sin^2(x) + \cos^2(x) = 1.$$