This is a variant of the problem w2D. It is intended to be used right before problem esergel55.

1. (a) There are values of the constants A and B so that the derivative of $Axe^x + Be^x$ is xe^x. Find these values.

   (b) Use your answer from part (a) to compute $\int_1^2 xe^x \, dx$.

   (c) Compute the derivative of $x \ln(x)$.

   (d) Find the general antiderivative of $\ln(x)$.