Circle True or False or leave blank. (1 point for correct answer, -1 for incorrect answer, 0 if left blank)

1. True   False   When integrating by parts, choosing different functions for u and dv will give you different antiderivatives.

2. True   False   The error bound for using an approximation method can be 0.

Show your work and justify your answers. Please circle or box your final answer.

3. (10 points) (a) (7 points) Integrate $\int e^{\sqrt{x}}dx$.

   (b) (3 points) What is the smallest number of intervals n you need to use in order to guarantee that the trapezoid approximation of $\int_1^2 \ln x\,dx$ is within $\frac{1}{12 \cdot 101}$. (The error bound using trapezoid approximation is $\frac{K_2(b-a)^3}{12n^2}$.)