901. Consider the rectangle \( R = [1, 3] \times [4, 5] \) in the \( xy \) plane. A 3D object \( E \) lies above the rectangle \( R \) and below \( z = y + 2 \). The units for \( x, y, z \) are cm. Include units in your answers. The density at \((x, y, z)\) is \( \rho(x, y, z) = e^x \text{ g/cm}^3 \).

(a) Compute the volume of \( E \) using

\[
\text{Volume} = \int_1^3 \int_4^5 ((z \text{ at top}) - (z \text{ at bottom})) \, dA.
\]

(b) Compute the mass of \( E \) using

\[
\text{Mass} = \iiint_E \rho(x, y, z) \, dV = \int_1^3 \int_4^5 \int_{y+2}^{z \text{ at top}} \rho(x, y, z) \, dz \, dA = \cdots
\]

(c) Compute the average density of \( E \):

\[
\text{Average of } \rho(x, y, z) \text{ over } E = \frac{\text{Mass of } E}{\text{Volume of } E}
\]