1. Evaluate 
\[ \iiint_{M} z^2 \, dV, \]
where \( M \) is the region between the spheres \( x^2 + y^2 + z^2 = 9 \) and \( x^2 + y^2 + z^2 = 25 \), in the upper half-space \( z \geq 0 \).

2. Evaluate 
\[ \iint_{D} (x - y)^7 e^{x+y} \, dA, \]
where \( D \) is the square with vertices \((1,0), (2,1), (1,2), (0,1)\).

3. Evaluate 
\[ \iint_{R} \frac{1}{x+y} \, dA, \]
where \( R \) is the region in the \( x, y \)-plane bounded by the lines \( x+y = 1, x+y = 4, y = 0 \) and \( x = 0 \). Use the change of variables \( x = u - uv, y = uv \).