1. (10 points) Let $D^*$ be the triangle in the $uv$-plane with vertices $(0,0)$, $(1,0)$, and $(1,1)$. Consider the transformation $T(u,v) = (u, e^v - 1)$.

(a) Sketch and label clearly $D$, the image of $D^*$ under the mapping $T$.
(b) Express the area of $D$ as an integral over $D^*$ and compute the integral.

Bonus: Final of a 4 part series on mammals: Name a primate.