MTH 265, Quiz #11, Summer 2024 Name _____

Instructions: Show all work. Use exact answers unless otherwise asked to round.

1. Consider the function $f(x,y) = x^2y - e^{x-y}$.
   a. Find the equation of the tangent plane at the point $(1,1)$.

   b. Find the equation of the normal line in vector-valued function form at the same point.

2. Find the equation of the tangent plane for the parametric surface $\vec{r}(u,v) = u\cos v\,\hat{\imath} + (u\sin v - 1)\hat{\jmath} + u^2\hat{k}$ at $u = 2\sqrt{2}, v = \frac{\pi}{4}$.

3. What kind of surface is the function in #2? Use technology to produce a graph.