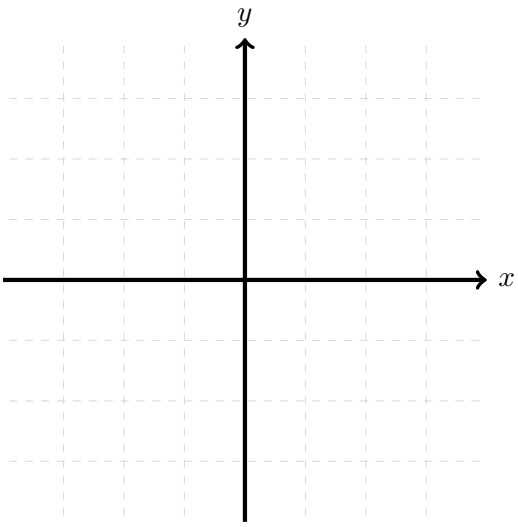
Full name: _____ **GT ID:**_____ **Sec:**___

Quiz 2 Version C

You have 15 minutes to take the quiz. No phones, notes, or use aids of any kind is permitted.

1. (4 points) On the axes provided, sketch the cross-sections parallel to the plane xy-coordinate plane of the surface $z^2 = x^2 + y^2$ for $z = 0$, $z = 1$, and $z = 2$. Clearly label the axes and your graphs. Then, identify the quadratic surface by choosing one of the options given. [A]



◯ elliptical paraboloid

◯ hyperbolic paraboloid

◯ elliptical cone

◯ ellipsoid

2. (6 points) **[Unit Tangent & Normal, Curvature]**
Find the unit tangent vector $\mathbf{T}$ for the given curve segment, and find the length of the curve. [AJN]

$$\mathbf{r}(t) = (2+t)\mathbf{i} - (t+1)\mathbf{j} + t\mathbf{k}, \quad 0 \le t \le 3$$