MATH 2551-GT-E– Multivariable Calculus **Summer 2025**

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

Quiz 8 Version C

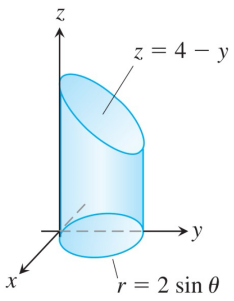
You have 15 minutes to take the quiz. No phones, notes, or use aids of any kind is permitted.

1. (2 points) **[Spherical Coordinates]** *Fill in the blanks.*

   Find the spherical coordinates of the point $(-\sqrt{2}, -\sqrt{2}, 2\sqrt{3})$ given in cartesian coordinates. [AN]

2. (4 points) **[Cylindrical Coordinates]**
   Set up an iterated integral *but do not evaluate* for evaluating $\iiint_D f(r,\theta,z) r\, dz\, dr\, d\theta$ over the given region D. [AJN]

   D is the right circular cylinder whose base is the circle $r = 2\sin\theta$ in the xy-plane and whose top lies in the plane $z = 4 - y$.



3. (4 points) **[Spherical Coordinates]**
   Set up an iterated integral *but do not evaluate* for converting $\iiint_D f(x,y,z)dx\, dy\, dz$ into an integral in spherical coordinates over the given region D. [AJN]

   D is the right solid between the sphere $\rho = \cos\varphi$ and the hemisphere $\rho = 2$, $z \geq 0$.