Analysis H – Hahn /Tantod
Unit 3, Quiz 2 – 2021/22
[25 points]

I'm Lost in Space: _____
Per: ____

1. Find the points of intersection for the polar graphs $r = \sqrt{3}sin2\theta$ and $r = 3cos2\theta$, for $0 \leq \theta \leq 2\pi$. Please show all your work including the graphs of the two equations. (6 pts)

II. Matching: Match each quadric surface below to its corresponding name. [1 pts each]

A: Plane **B**: Hyperboloid of 1 Sheet **C**: Hyperboloid of 2 Sheets **D**: Ellipsoid

E: Elliptic Cone **F**: Hyperbolic Paraboloid (saddle) **G**: Elliptic Paraboloid **H**: None of the Above

2. $y^2 + 9z^2 = 9$_____ 3. $\frac{x^2}{4} - \frac{y^2}{9} + \frac{z^2}{6} = 1$ _____ 4. $x^2 + y^2 - 24 = 4z$ _____

5. $y^2 = 4x^2 + 16z^2$ _____ 6. $5x - 3y + 2 = 30$ _____ 7. $x = 4 - 5y^2 - 9z^2$ _____

8. Sketch a picture of, and write the equation for a circular cylinder with center: (2,-3,5), and radius = 4 that extends forever in the x direction. Note that this cylinder actually has infinite centers, so consider (2,-3,5) just one of them. [5]

Sketch:

Equation: _____

9. Sketch a picture of, and name the following curve $\frac{x^2}{4} + \frac{z^2}{9} = \frac{y^2}{12} + 1$ [5]

Sketch:

Name: _____

10. The quadric surface $9y^2 = 4x^2 + 36$ is a hyperbolic cylinder. Draw a sketch with the intercepts. Show all your work. [3]