

Math 3298 Worksheet 2

Group members (2 to 4): _____

- (1) Sketch the intersection of the quadric surface given by

$$x^2 + 2y^2 - 2z^2 + 4z + 6 = 0$$

with the planes $x = 0$, $z = 3$, and $z = -3$. What type of conics are the resulting curves?

- (2) Classify the quadric surface based on your answers above, and sketch the surface as best you can.

(3) Convert the implicit quadric equation $x^2 + 2yz = 0$ into spherical coordinates.

(4) What kind of quadric surface is $x^2 + 2yz = 0$? How did you determine this?
(Hyperbolic paraboloid, elliptic paraboloid, hyperboloid of one or two sheets, ellipsoid, cone, pair of planes, . . .)