

ESP
Kouba
Worksheet 1

1.) Graph each of the following equations in two-dimensional space.

a.) $y = 3$

b.) $x = -2$

c.) $y = x$

d.) $y = 3 - x$

e.) $y = x^3$

2.) Graph each of the following equations in three-dimensional space.

a.) $y = 3$

b.) $x = -2$

c.) $y = x$

d.) $y = 3 - x$

e.) $y = x^3$

f.) $z = 4$

g.) $z = 1 - x$

h.) $z = 1 - y$

i.) $x + y + z = 1$

j.) $3x + 2y + z = 6$

k.) $y = x^2$

l.) $z = x^2$

m.) $z = y^2$

n.) $x^2 + y^2 = 4$

o.) $x^2 + y^2 + z^2 = 4$

p.) $z = x^2 + y^2$

q.) $z^2 = x^2 + y^2$

r.) $z = y^2 - x^2$

3.) Find the center and radius of each of the following spheres.

a.) $x^2 + (y - 1/2)^2 + (z + 7)^2 = 4/9$

b.) $2x^2 - 2x + 2y^2 - y + 2z^2 + 4z = 0$

c.) $(x - 1)^2 - (y + 1)^2 + (z - 3)^2 = -2y^2$

4.) A diameter of a sphere has endpoints $(0, 1, -1)$ and $(4, -3, 1/2)$. Determine an equation for this sphere.

5.) A rectangular box of length A , width B , and height C is inscribed in the sphere $x^2 + y^2 + z^2 = 1$. Show that $A^2 + B^2 + C^2 = 2$.