Homework 2 Solutions.

1. a) $K[y,z] =$

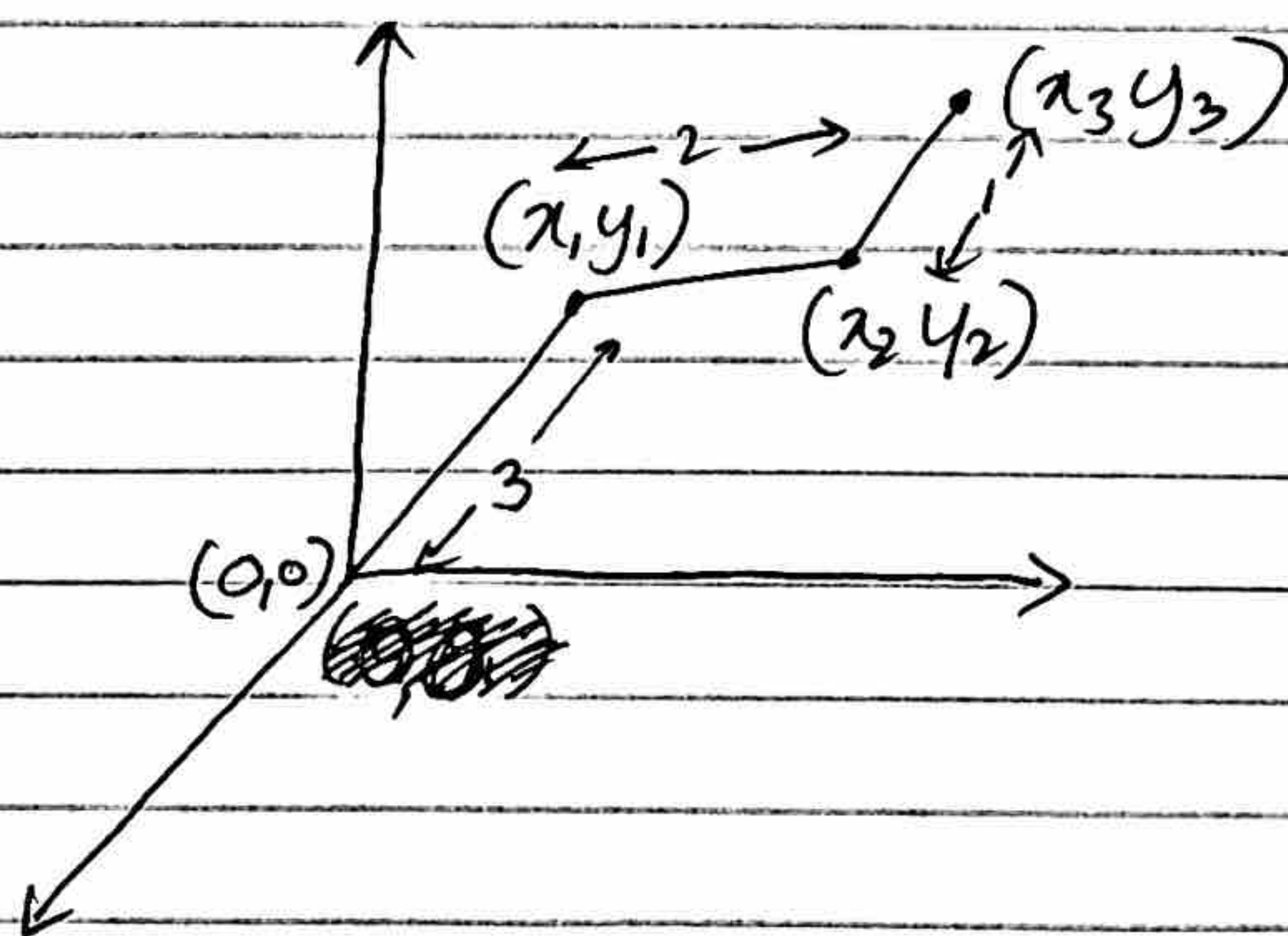$$y^2 z x^5 - y^3 x^4 + z x^2 + (2+y)x + (y^5 - y^3 z - 5z + 3)$$

b) $K[x,z] =$

$$y^5 - (x^4 + z)y^3 + x^5 z y^2 + xy + (x^2 z + 2x - 5z + 3)$$

c) $K[x,y] =$

$$(x^5 y^2 + x^2 - y^3 - 5) z + (-x^4 y^3 + y^5 + xy + 2x + 3)$$

3. a)

b) There are 6 variables (x_1, y_1), (x_2, y_2) and (x_3, y_3)

c) Equations for possible slates

$$x_1^2 + y_1^2 = 9$$
$$(x_2 - x_1)^2 + (y_2 - y_1)^2 = 4$$
$$(x_3 - x_2)^2 + (y_3 - y_2)^2 = 1$$

(d)   Variable restraints

$$6 - 3 = 3$$

#variables   equations.

$\therefore$ 3 Dimension for the variety of states.