(7)

Observations	x_1	x_2	Y
1	0	3	Red
2	2	0	Red
3	0	1	Red
4	0	1	Green
5	-1	0	Green
6	1	1	Red

Sol?,

For $K=3$ when $x_1 = x_2 = 0$.

Distance 1 $= \sqrt{0^2+3^2} = 3$

Distance 2 $= \sqrt{2^2+0^2} = 2$.

Distance 3 $= \sqrt{0^2+1^2} = 1 \rightarrow$ Red

Distance 4 $= \sqrt{0^2+1^2} = 1 \rightarrow$ Green

Distance 5 $= \sqrt{(-1)^2+0^2} = \sqrt{1^2} = 1 \rightarrow$ Green

Distance 6 $= \sqrt{1^2+1^2} = \sqrt{2}$.

Here, we have 2 green and 1 red.

Thus, the probability of green $= \frac{2}{3}$ > probability of red $= \frac{1}{3}$. So the predicted color of Y when $x_1 = x_2 = 0$ is Green.