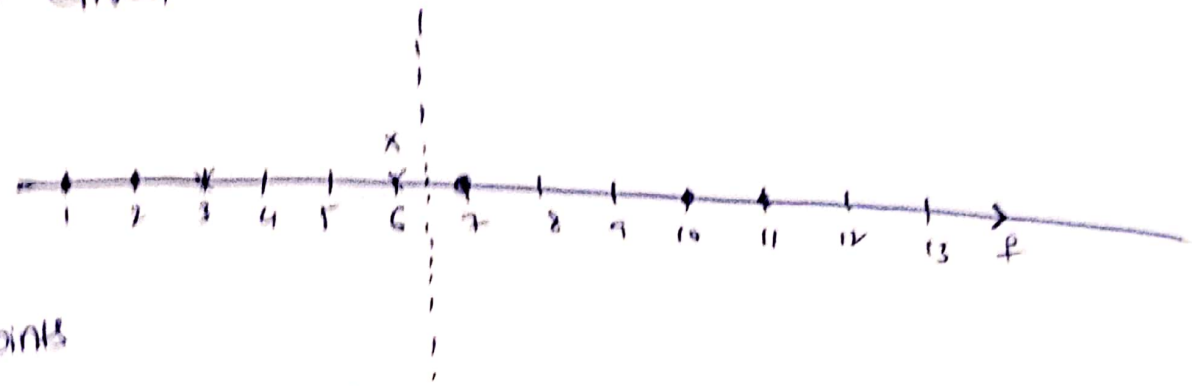
10th) Given



Points

x	y	
1	0	5.5
2	0	4.5
7	0	0.5
10	0	3.5
11	0	4.5
3	0	3.5
6	0	0.5
6.5	0.5	0.44
6.5	0	?

let us consider (6.5, 0) as the point

⇒ calculating distance from all points to target point

$$\rightarrow \sqrt{(6.5-1)^2+(0-0)^2} = 5.5$$

as given K = 3, I consider three nearest points

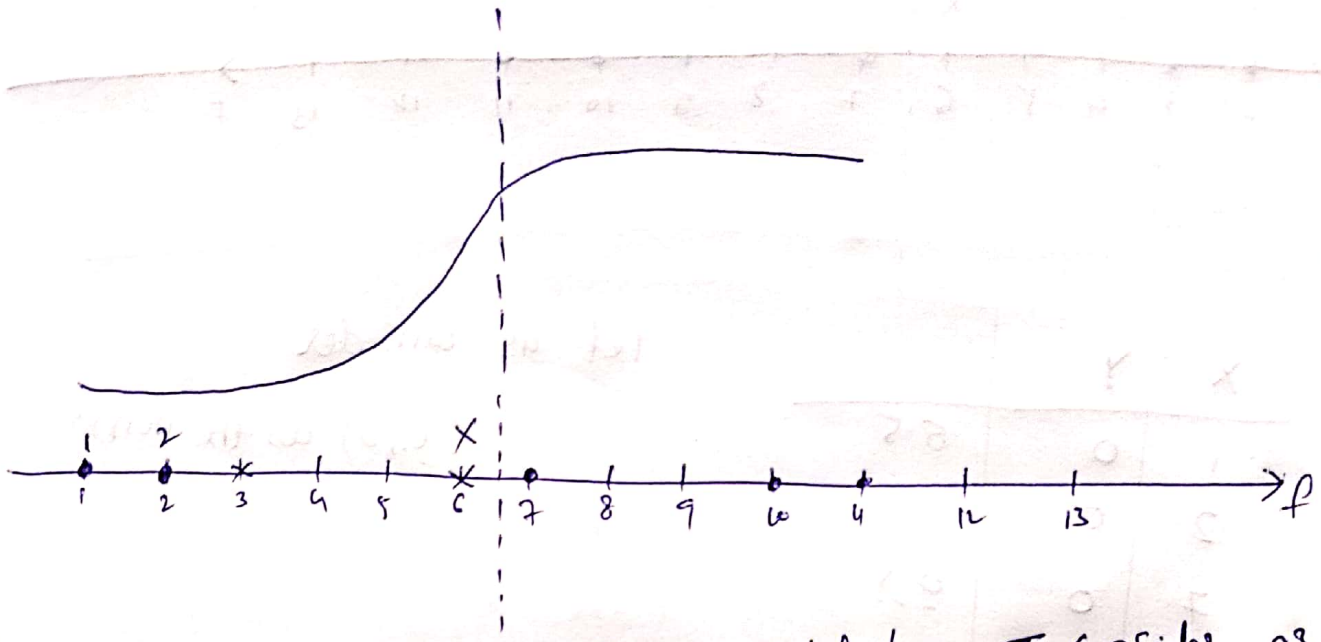
they are 0.44 ... set 2

0.5 ... set 2

0.5 ..... set 1

as majority is from set 2, the target point belongs to set 2.

Let us consider



⇒ The points which are on left side of dotted line - To consider as rightly placed (x)

and on right side, the points (x) wrongly placed.

⇒ The point(●) on left side → Wrongly placed

The point(●) on right side → Rightly placed.

So ⇒ 3 points (x) are on rightly placed

0 points (x) are on wrongly placed

3 points (●) are on rightly placed

2 points (●) are on wrongly placed.

Confusion matrix:

Truth \ Prediction		
	3	0
	2	3

TN = 3 | FN = 0

TP = 3 | FP = 2

$\Rightarrow$ Accuracy $= \frac{(TP+TN)}{P+N} = \frac{(TP+TN)}{(TP+FN)+(FP+TN)}$

$= \frac{3+3}{(3+0)+(2+3)} = \frac{6}{8} = 0.75$

$\Rightarrow$ Sensitivity (TPR) $= \frac{TP}{P} = \frac{TP}{(TP+FN)}$

$= \frac{3}{3+0} = 1$

$\Rightarrow$ Specificity (TNR) $= \frac{TN}{N} = \frac{TN}{FP+TN} = \frac{3}{2+3} = \frac{3}{5} = 0.6$