**Data for problem 2.**

x=c(0,1,0,0,0,0,1,0,0,0,1,0,0,1,0,0,1,2,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,1,0,0,0,1,0,1,0,0,0,1,1,0,0,1,0,0,0,2,0,0,0,0,0,0,1,1,0,0,0,0,0,1,1,0,0,1,3,0,0,1,0,0,0,0,0,0,0,0,1,0,0,0,0,2,0,0,1,1,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,1,0,0,3,0,1,2,0,0,3,0,0,0,2,0,0,0,1,0,0,0,0,1,0,1,0,0,0,0,0,0,4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,0,1,0,0,0,0,0,0,0,0,5)

y=c(0,1,0,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,2,4,0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,0,1,0,1,1,1,0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,0,1,0,1,1,0,0,0,0,0,0,0,0,0,3,0,0,0,0,0,0,0,1,0,0,0,0,0,0,2,0,1,0,0,0,0,0,1,0,0,0,1,0,0,1,0,1,0,0,0,1,0,0,0,0,0,0,1,0,1,0,0,0,1,0,0,0,0,0,0,0,3,0,0,0,0,1,1,0,0,0,1,0,1,0,0,1,0,1,1,0,1,0,0,0,0,0,1,0,0,2,0,1,0,0,0,1,1,0)

**Data for problem 3.**

y=c(7, 7, 15, 11, 7, 9, 16 , 15, 15, 16, 22, 18).