Calculate F Test for given 10, 20, 30, 40, 50 and 5,10,15, 20, 25.

For 10, 20, 30, 40, 50:

Step 1:- Number of inputs(N)= 5

Step2:- Mean (X)=(x1+x2+x3+x4+x5)/N

X1=10

X2=20

X3=30

X4=40

X5=50

=(10+20+30+40+50)/5

Mean (X)=150/5=30

Step 3:- Calculate Variance of 1st set

SD= sqrt(1/(N-1)\*((X1-X)2+(X2-X)2+(X3-X)2+(X4-X)2+(X5-X)2))

SD=sqrt(1/(5-1)((10-30)2+(20-30)2+(30-30)2+(40-30)2+(50-30)2))  
SD=sqrt(1/4((-20)2+(-10)2+(0)2+(10)2+(20)2))   
SD=sqrt(1/4((400)+(100)+(0)+(100)+(400)))   
SD=sqrt(250)   
SD=15.8114   
Variance=SD2   
Variance=15.81142   
Variance=250   
  
**Calculate Variance of second set** 

Step 1:- Number of inputs(N)= 5

Step2:- Mean (Y)=(Y1+Y2+Y3+Y4+Y5)/N

Y1=5

Y2=10

Y3=15

Y4=20

Y5=25

=(5+10+15+20+25)/5

Mean (Y)=75/5=15

Step 3:- Calculate Variance of 2nd set

SD= sqrt(1/(N-1)\*((Y1-Y)2+(Y2-Y)2+(Y3-Y)2+(Y4-Y)2+(Y5-Y)2))

SD=sqrt(1/(5-1)((5-15)2+(10-15)2+(15-15)2+(20-15)2+(25-15)2))  
SD=sqrt(1/4((-10)2+(-5)2+(0)2+(5)2+(10)2))   
SD=sqrt(1/4((100)+(25)+(0)+(25)+(100)))   
SD=sqrt(62.5)   
SD=7.9057   
Variance=62.5 

**To calculate F Test**   
F Test = (variance of 10, 20,30,40,50) / (variance of 5, 10, 15, 20, 25)   
= 250/62.5   
= 4   
  
The F Test value is 4. 