Q. Watson durbin test:

X	x1	yt	y(t-1)	yt-m1	y(t-1)-m2	(yt-m1)^2	(y(t-1)-m2)	product	exp y	error	error^2	diff^2
1	-5	10	12	-5	-3	25	9	15	16.55	-6.55	42.84	5.76
2	-4	12	18	-3	3	9	9	-9	16.15	-4.15	17.18	40.96
3	-3	18	22	3	7	9	49	21	15.75	2.25	5.08	19.36
4	-2	22	16	7	1	49	1	7	15.35	6.65	44.28	31.36
5	-1	16	18	1	3	1	9	3	14.95	1.05	1.11	5.76
6	0	18	18	3	3	9	9	9	14.55	3.45	11.93	0.16
7	1	18	17	3	2	9	4	6	14.15	3.85	14.86	0.36
8	2	17	10	2	-5	4	25	-10	13.75	3.25	10.59	43.56
9	3	10	9	-5	-6	25	36	30	13.35	-3.35	11.19	0.36
10	4	9	10	-6	-5	36	25	30	12.95	-3.95	15.57	1.96
11	5	10		-5					12.55	-2.55	6.48	
	Mean	15	15			176	176	102		0.0	181.13	149.60
											0.825939	

Find autocorrelation by lag1
Apply Warson Durbin Test
Apply Runs Test

Auto Corr 0.580

Conclusion From this we make a conclusion that the given time series yt and its lagged version by 1i.e. y(t-1) have positive conclusion.
From this we say that autocorrelation in th egiven time series is equal to 0.580 ,htati s autocorrelation is positive.

Now Applying watson Durbin Test

At this point we assume that linearily in the given data, and so we make a linear assumption in the data and apply y =a+bx where a,b are constants to be found and x is directly proportional to the time.

Normal Equations

1st	sum(y)=na+b(sum(x))	y	160	11a		14.5 <-a	
	sum(xy)=a(sum(x))+b(Sum(x^2))	xy	-44	0	110 b		-0.4

W.D. sum(diff^2)/sum(error^2)

According to watson Dubrin test , <formula>=0.8259. And .8259remains between 0 and 2 so it suggests a positive autocorrelation.

Signs of error terms
n=11 r=3
n1=6
n2=5
because n1<20, we look in the table

We have the runs test in order to check the randomness of the error for that we have small
n=11, n1=6 and n2=5 with r=3. therefore lower and upper limits of r, r1=4 and r2=9, so we have our vlue of r doesn't falll in this range so the null hypothesis H0: There is randomness. (is rejected), Therefore we accept H1: There is no randomness.

X	yt	exp y
1	10	16.5455
2	12	16.1455
3	18	15.7455
4	22	15.3455
5	16	14.9455
6	18	14.5455
7	18	14.1455
8	17	13.7455
9	10	13.3455
10	9	12.9455