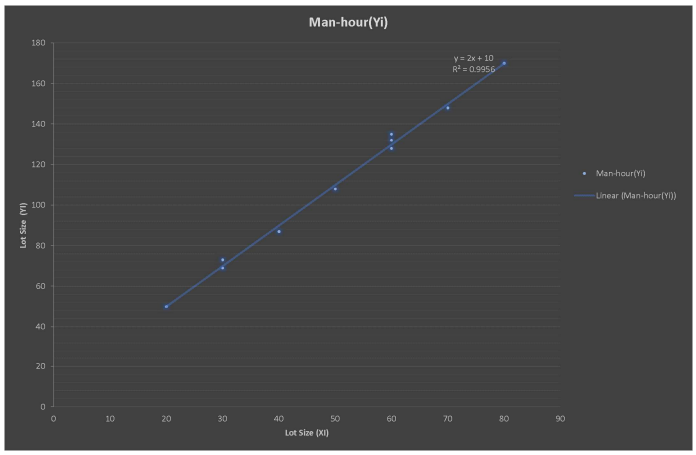
Yi=Bo+B1Xi+e LINERAR REGRESSION

Production Run (i)	Lot Size (xi)	Man-hour(Yi)		Xi-X Deviation of X	Yi-Y Deviation of Y	(Xi-X)^2 Square of Deviation	(Yi-Y)^2 Square of Deviation	(Xi-X)(Yi-Y)
1	30	73		-20	-37	400	1369	740
2	20	50		-30	-60	900	3600	1800
3	60	128		10	18	100	324	180
4	80	170		30	60	900	3600	1800
5	40	87		-10	-23	100	529	230
6	50	108		0	-2	0	4	0
7	60	135		10	25	100	625	250
8	30	69		-20	-41	400	1681	820
9	70	148		20	38	400	1444	760
10	60	132		10	22	100	484	220
Average	**50**	**110**	**Sum**	**0**	**0**	**3400**	**13660**	**6800**
Sum	**500**	**1100**						

Degree of freedom	9	9
Variance	377.7777778	1517.777778
	377.7777778	1517.777778
Standard Deviation	19.43650632	36.95943723
	19.43650632	38.95866756

NORMAL EQUATION

B1	**2**
Bo	**10**



Production Run (i)	Lot Size (xi)	Man-hour(Yi)
1	30	73
2	20	50
3	60	128
4	80	170
5	40	87
6	50	108
7	60	135
8	30	69
9	70	148
10	60	132
Average	**50**	**110**
Sum	**500**	**1100**

	y^ =10+2*x	e=yi - y^	e^2	e*xi	e*y^
	70	3	9	90	210
	50	0	0	0	0
	130	-2	4	-120	-260
	170	0	0	0	0
	90	-3	9	-120	-270
	110	-2	4	-100	-220
	130	5	25	300	650
	70	-1	1	-30	-70
	150	-2	4	-140	-300
	130	2	4	120	260
Sum	**1100**	**0**	**60**	**0**	**0**

PROPERTIES OF FITTED LINEAR REGRESSION LINE

1.The sum of Residuals is Zero.
2. The sum of Residuals of square is minimum(OLS).
3.The sum of Observation Value is equal to sum of Fitted (Predicted) Value.
4.The sum weighted residual in the th trial is weighted by the leve of independent variable in the trail.
5.The sum weighted residual in the th trial is weighted by the filtted value of response variable in the trail.
6. Regression Line always go through mean X and Y.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.99780139
R Square	0.995607613
Adjusted R Square	0.995058565
Standard Error	2.738612788
Observations	10

ANOVA (Analysis Of Variance)

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	**SSR** 13600	**MSR** 13600	1813.3333	1.01959E-10
Residual ERROR	8	**SSE** 60	**MSE** 7.5		
Total	9	**SSTO** 13660			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	10	2.502939448	3.99530241	0.0039758	4.228211282	15.77178872	4.228211282	15.77178872
X Variable 1	2	0.046966822	42.5832518	1.02E-10	1.891694315	2.108305685	1.891694315	2.108305685

SS: Sum of Square
df : Degree of freedom
MS : Mean of Square
SSR : Regression sum of square
SSE : Residual sum of square
SSTO : Total sum of square
SSTO = SSE + SSR
MSE :Error Mean Square(SSE/df)
MSR : SSR/df
F : F* = MSR/MSE