EXAMPLE TABLE 6-1 DATA

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9754034
R Square	0.951411792
Adjusted R Square	0.948712447
Standard Error	1.790658723
Observations	20

$R^2 = 0.9487$ or $100R^2 = 94.87\%$ COEFFICIENT OF DETERMINATION

$\hat{Y} = \hat{B}_0 + \hat{B}_1 X$

$\hat{Y} = 2.6765 + 17.5467X$

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1130.149244	1130.149	352.4603	2.86264E-13
Residual	18	57.71625593	3.206459		
Total	19	1187.8655			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	2.676546307	0.868003806	3.083565	0.006405	0.852937981	4.5001546
Roadway Area (X)	17.5466671	0.934629662	18.77392	2.86E-13	15.58308305	19.510251

$df \rightarrow 18$

$\hat{B}_0$ $t_{OBT}\hat{B}_0$ T_{OBT} CI FOR $\hat{B}_0$ AND $\hat{B}_1$

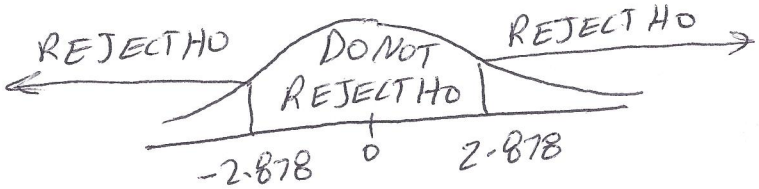
$\hat{B}_1$ $t_{OBT}\hat{B}_1$

HYPOTHESIS TESTS

1) $H_0: B_1 = 0$
$H_1: B_1 \neq 0$

$\alpha = 0.1, \alpha/2 = .005$ $df = n-2 = 20-2 = 18$
$t_{.005,18} = 2.878$ FROM T-TABLE

2) IF $t_{OBT} > 2.878$ or $t_{OBT} < -2.878$ REJECT H_0



3) $t_{OBT} = 18.774$ FROM EXCEL OUTPUT

4) IS $t_{OBT} > 2.878$? AS $18.774 > 2.878$ REJECT H_0
$\therefore B_1 \neq 0$

5) WE ARE 99% CONFIDENT THAT THERE IS A SIMPLE LINEAR RELATIONSHIPS BETWEEN THE SALT CONCENTRATION(Y) AND THE ROADWAY AREA(X) DEFINED BY $\hat{Y} = 2.6765 + 17.5467X$

ADJ $R^2 = 94.87\%$ MEANS THAT 94.87% VARIATIONS IN SALT CONCENTRATION Y IS EXPLAINED BY THE VARIATIONS IN ROADWAY AREA(X). COEFFICIENT OF DETERMINATION

COEFFICIENT OF CORRELATION = $R = 0.975$ MEANS THAT WE HAVE A VERY STRONG POSITIVE RELATIONSHIP BETWEEN SALT CONCENTRATION Y AND ROADWAY AREA(X). A T-TEST IS REQUIRED