

Relationships and Formulas you need to know when it comes to Regression Excel Output. Knowing these will be EXTREMELY HELPFUL on Exam 3. (They will also help you fill in page 132-133 of the class packet.)

Excel's "ANOVA block"

row relationship:
Row3=Row1+Row2
column relationship:
Column3=Column2/Column1
If you have 2 out of the 3 numbers, you can always derive the 3rd number

Excel's "b block"

column relationship:
Column3=Column1/Column2
Column5a=Column1- $t_{.05/2, dfE}$ *Column2
Column5b=Column1+ $t_{.05/2, dfE}$ *Column2
If you have 2 out of the 3 numbers, you can always derive the 3rd number

Excel's "prediction block"

column relationship:
Column3a=Column1- $t_{.05/2, dfE}$ *Column2
Column3b=Column1+ $t_{.05/2, dfE}$ *Column2
If you have 2 out of the 3 numbers, you can always derive the 3rd number

Dep.=Y Indep.=X

SUMMARY OUTPUT

Regression Statistics	
Multiple R	$\sqrt{r^2}$
R Square (r^2)	SSR/SST
Adjusted R Square	
Standard Error (s_e)	$\sqrt{MSE}$
Observations	n

ANOVA		Column1	Column2	Column3		
		df	SS	MS	F	Significance F (P-value)
Row1	Regression	1	SSR	SSR/df _R	MSR/MSE= t_{stat}^2	same as P-value for t_{stat}
Row2	Residual (Error)	n-2	SST-SSR	SSE/df _E		
Row3	Total	n-1	SST			

	Column1	Column2	Column3		Column5a	Column5b
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	b_0					
X Variable 1 (slope)	b_1	s_{b1}	$(b_1-0)/s_{b1}$	same as P-value for F_{stat}	$b_1-t_{.05/2, dfE}*s_{b1}$	$b_1+t_{.05/2, dfE}*s_{b1}$

	Column1	Column2	Column3a	Column3b		
	Predicted Value (yhat)	SE Predicted Value	CI Lower 95%	CI Upper 95%	PI Lower 95%	PI Upper 95%
x_0						
x_0 (given)	$b_0+b_1*x_0$	s_{yhat}	$y_{hat}-t_{.05/2, dfE}*s_{yhat}$	$y_{hat}+t_{.05/2, dfE}*s_{yhat}$	$y_{hat}-t_{.05/2, dfE}*s_{ind}$	$y_{hat}+t_{.05/2, dfE}*s_{ind}$

where $s_{ind}=\sqrt{MSE+s_{yhat}^2}$