Chapter 20 Problems

1a. From SPSS Output:

Predictors	R^2	F
X_1, X_2, X_3	.731	14.52*

*: $p < .05$

1b.

Predictors	R^2	ΔR^2	F (SPSS)	F (Book)
X_3	.654	NA	34.07*	38.93*
X_3, X_1	.700	.0458	2.60	2.73
X_3, X_1, X_2	.731	.0312	1.86	1.86

*: $p < .05$; error term for F(Book) = $(1 - R^2_{max})/(N-k-1)$
$= (1 - .731)/(20-3-1) = .0168$; all information except F(Book) is from SPSS output

1c. Predictors entered in chronological order:

Predictors	R^2	ΔR^2	F (SPSS)	F (Book)
X_1	.592	NA	26.13*	35.24*
X_1, X_2	.643	.0507	2.42	3.02
X_1, X_2, X_3	.731	.0885	5.27*	5.27*

*: $p < .05$; as above, error term used for F(Book) = .0168; all information except F(Book) is from SPSS output

Regression - Simultaneous (Part a)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.855[a]	.731	.681	.909

a. Predictors: (Constant), Millions of dollars earned for firm, Cases won in the last year, Bar exam score

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.983	3	11.994	14.520	.000[a]
	Residual	13.217	16	.826		
	Total	49.200	19			

a. Predictors: (Constant), Millions of dollars earned for firm, Cases won in the last year, Bar exam score

b. Dependent Variable: Performance

Regression - Forward (Part b)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809[a]	.654	.635	.972
2	.837[b]	.700	.665	.932
3	.855[c]	.731	.681	.909

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	.654	34.065	1	18	.000
2	.046	2.599	1	17	.125
3	.031	1.860	1	16	.191

a. Predictors: (Constant), Millions of dollars earned for firm

b. Predictors: (Constant), Millions of dollars earned for firm, Bar exam score

c. Predictors: (Constant), Millions of dollars earned for firm, Bar exam score, Cases won in the last year

Excluded Variables[c]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Bar exam score	.348[a]	1.612	.125	.364	.378
	Cases won in the last year	.150[a]	1.085	.293	.254	.991
2	Cases won in the last year	.179[b]	1.364	.191	.323	.976

a. Predictors in the Model: (Constant), Millions of dollars earned for firm

b. Predictors in the Model: (Constant), Millions of dollars earned for firm, Bar exam score

c. Dependent Variable: Performance

Regression - Order specified (Part c)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.592	.569	1.056
2	.802[b]	.643	.601	1.017
3	.855[c]	.731	.681	.909

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	.592	26.125	1	18	.000
2	.051	2.415	1	17	.139
3	.089	5.274	1	16	.035

a. Predictors: (Constant), Bar exam score

b. Predictors: (Constant), Bar exam score, Cases won in the last year

c. Predictors: (Constant), Bar exam score, Cases won in the last year, Millions of dollars earned for firm