ANOVA

1) That the starting salaries of new accounting graduates would differ according to geographic regions of the United States seems logical. A random selection of accounting firms is taken from three geographic regions, and each is asked to state the starting salary for a new accounting graduate who is going to work in auditing. The data obtained follow. Use a one- way ANOVA to analyze these data. Note that the data can be restated to make the computations more reasonable (example: $42,500 = 4.25). Use a 1% level of significance. Discuss the business implications of your findings.

South	Northeast	West
$48,600	$59,100	$53,600
49,600	57,600	51,600
48,100	57,100	53,100
49,100	56,100	54,600
49,600	57,600	54,100

2) A management consulting company presents a three-day seminar on project management to various clients. The seminar is basically the same each time it is given. However, sometimes it is presented to high-level managers, sometimes to midlevel managers, and sometimes to low-level managers. The seminar facilitators believe evaluations of the seminar may vary with the audience. Suppose the following data are some randomly selected evaluation scores from different levels of managers who attended the seminar. The ratings are on a scale from 1 to 10, with 10 being the highest. Use a one-way ANOVA to determine whether there is a significant difference in the evaluations according to manager level. Assume $\alpha = .05$. Discuss the business implications of your findings.

High Level	Mid Level	Low Level
7	8	5
7	9	6
8	8	5
7	10	7
9	9	4
	10	8
	8	

3) Family transportation costs are usually higher than most people believe because those costs include car payments, insurance, fuel costs, repairs, parking, and public transportation. Twenty randomly selected families in four major cities are asked to use their records to estimate a monthly figure for transportation cost. Use the data obtained

and ANOVA to test whether there is a significant difference in monthly transportation costs for families living in these cities. Assume that $\alpha = .05$. Discuss the business implications of your findings.

Atlanta	New York	Los Angeles	Chicago
$850	$450	$1050	$740
680	725	900	650
750	500	1150	875
800	375	980	750
875	700	800	800

4) Safety in motels and hotels is a growing concern among travelers. Suppose a survey was conducted by the National Motel and Hotel Association to determine U.S. travelers' perception of safety in various motel chains. The association chose four different national chains from the economy lodging sector and randomly selected 10 people who had stayed overnight in a motel in each of the four chains in the past two years. Each selected traveler was asked to rate each motel chain on a scale from 0 to 100 to indicate how safe he or she felt at that motel. A score of 0 indicates completely unsafe and a score of 100 indicates perfectly safe. The scores follow. Test this randomized block design to determine whether there is a significant difference in the safety ratings of the four motels. Use $\alpha = .05$.

Traveler	Motel 1	Motel 2	Motel 3	Motel 4
1	40	30	55	45
2	65	50	80	70
3	60	55	60	60
4	20	40	55	50
5	50	35	65	60
6	30	30	50	50
7	55	30	60	55
8	70	70	70	70
9	65	60	80	75
10	45	25	45	50

5) In recent years, the debate over the U.S. economy has been constant. The electorate seems somewhat divided as to whether the economy is in a recovery or not. Suppose a survey was undertaken to ascertain whether the perception of economic recovery differs according to political affiliation. People were selected for the survey from the Democratic Party, the Republican Party, and those classifying themselves as

independents. A 25-point scale was developed in which respondents gave a score of 25 if they felt the economy was definitely in complete recovery, a 0 if the economy was definitely not in a recovery, and some value in between for more uncertain responses. To control for differences in socioeconomic class, a blocking variable was maintained using five different socioeconomic categories. The data are given here in the form of a randomized block design. Use $\alpha = .01$ to determine whether there is a significant difference in mean responses according to political affiliation.

	Political Affiliation		
Socioeconomic Class	**Democrat**	**Republican**	**Independent**
Upper	11	5	8
Upper middle	15	9	8
Middle	19	14	15
Lower middle	16	12	10
Lower	9	8	7