Correlation and Regression Practice Problems

1. The data below concerns data collected by 12 employees at Dunder-Mifflin Paper. The manager is interested in whether job satisfaction scores may be related to job performance scores.

a. Calculate a Pearson Correlation on the data.
b. Test whether the two variables are significantly related (use alpha = .05, two-tailed test).
c. Report in APA format.
d. Report and interpret the effect size.

satisfaction	performance
18	9
14	8
15	8
9	4
8	3
12	6
4	1
19	10
10	6
6	5
17	8
14	8

2. A student in Wilmington ranks 10 pizza restaurants based on taste (1 = best tasting) and also on cost (1 = most expensive).

a. Calculate a Spearman Correlation on the data.
b. Test significance – Is taste positively correlated with cost? Test at alpha = .05
c. Report in APA format.

taste rank	**cost rank**
1. Brixx Pizza	1
2. Brooklyn Pizza	5
3. Antonio's Pizza	6
4. Siena's pizza	2
5. Elizabeth's Pizza	3
6. Mellow Mushroom	4
7. Cici's Pizza	10
8. Papa John's Pizza	8
9. Michelangelo's Pizza	7
10. Domino's Pizza	9

3. The data below concerns the number of applications students sent out to graduate schools, and whether or not they were accepted into a graduate program.
a. Conduct a Point-Biserial Correlation to determine if the number of applications is positively correlated with acceptance.
b. Test whether this positive relationship is significant, using a 1-tailed test at alpha = .05.
c. Report your findings in APA format.
Below are the number of applications for those who were accepted and those who were not accepted into graduate programs.

accepted	not accepted
15	8
10	7
12	4
16	6
20	
15	

4. Conduct a simple regression analysis to determine if the GRE Analytical Writing Score is positively correlated with G.P.A.

a. Calculate the standard error of estimate and interpret.
b. What percentage of variation in GPA can be explained by GRE scores?
c. Test the significance of r^2 and report in APA format.
d. Test the significance of the regression coefficient and report in APA format. Interpret the regression coefficient.

GRE	GPA
3.0	3.26
4.0	3.35
3.5	2.98
4.0	3.41
4.5	3.65
5.0	3.86
3.5	3.1
4.5	3.45
2.5	2.1
3.0	2.85