MAT 250/268
Chapters 10, 11, & 12 Review

Name: _____

Date: _____

Chapter 10

1. The yearly data have been published showing the number of releases for each of the commercial movie studios and the gross receipts for those studios thus far.

No. of releases (x)	361	270	306	22	35	10	8	12	21
Gross receipts (y)(million \$)	3844	1962	1371	1064	334	241	188	154	125

   (a) Based on these data, can it be concluded that there is a linear relationship between the number of releases and the gross receipts?

   (b) Find y' when $x = 200$ new releases

   (c) Find the 95% prediction interval when $x = 200$ new releases

2. An economics student wishes to see if there is a relationship between the amount of state debt per capita and the amount of tax per capita at the state level.

Per capita debt (x)	1924	907	1445	1608	661
Per capita tax (y)	1685	1838	1734	1842	1317

   (a) Based on the data, can they conclude that per capita state debt and per capita state taxes are related? Both amounts are in dollars and represent five randomly selected states.

   (b) Find y' when $x = \$1500$ in per capita debt

   (c) Find the 90% prediction interval when $x = \$1500$ in per capita debt

Chapter 11

1. A store manager wishes to see if the number of absences of her employees is the same for each weekday. She selected a random week and finds the following number of absences.

Day	Mon	Tue	Wed	Thu	Fri
Absences	13	10	16	22	24

   At $\alpha = 0.05$, is there a difference in the number of absences for each day of the week?

2. A professor wishes to see if students show a time preference for statistics classes. A sample of four statistics classes shows the enrollment. At $\alpha = 0.01$, do the students show a time preference for the classes?

Time	8AM	10AM	12PM	2PM
Students	24	35	31	26

3. A 2014 study indicated the following numbers of admissions (in thousands) for two different years. At the 0.05 level of significance, can it be concluded that movie attendance by year was dependent upon ethnicity?

	Caucasian	Hispanic	African American	Other
2013	724	335	174	107
2014	370	292	152	140

4. Is the size of the population by age related to the state that it's in? Use $\alpha = 0.05$. Population values in thousands.

	Under 5	5-17	18-24	25-44	45-64	65+
Pennsylvania	721	2140	1025	3515	2702	1899
Ohio	740	2104	1065	3359	2487	1501

Chapter 12

1. The per-pupil costs (in thousands of dollars) for cyber charter school tuition for school districts in three areas of southwestern Pennsylvania are shown.

Area I	Area II	Area III
6.2	7.5	5.8
9.3	8.2	6.4
6.8	8.5	5.6
6.1	8.2	7.1
6.7	7.0	3.0
6.9	9.3	3.5

   (a) At $\alpha = 0.05$, is there a difference in the means?

   (b) Use the Turkey test to test the differences between the pairs of means

2. Three popular fast-food restaurant franchises specializing in burgers were surveyed to find out the number of calories in their frequently ordered sandwiches.

FF#1	FF#2	FF#3
970	1010	740
880	970	540
840	920	510
710	850	510
	820	

   (a) At the 0.05 level of significance, can it be concluded that a difference in mean number of calories per burger exists?

   (b) Use the Scheffé test to test the differences between the pairs of means