

MAT 212 HOMEWORK EXERCISES

These Exercises are to be used with the text, *Statistics for Management and Economics*, 6th edition.

For all the exercises that have specific instructions given below, follow only these specific instructions and ignore the questions in the book.

SECTIONS	PAGES	EXERCISES
1.1-1.3	16-17	1, 2, 3, 4, 5, 6, 7, 8
2.1-2.2	30	3, 4, 6

For the Section 2.2 exercises identify each type of data as being quantitative or qualitative.

2.3	46-47	21, 24, 25, 27
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For the Section 2.3 exercises, use Minitab to construct a histogram, and interpret the histogram. If there is more than one data set in an exercise, also compare the histograms.

4.1-4.2	101	12, 13, 15, 16
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For the Section 4.2 exercises, use Minitab to construct a histogram, and calculate the mean and median. Compare the relative values of the mean and median. How are these related to the shape of the histogram?

4.3	108-109	27, 28, 29, 31, 32, 36
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For Section 4.3 exercises 31, 32, and 36, use Minitab to construct a histogram, sort the data, and calculate the mean and standard deviation. Find the percentage of the data in each of the intervals $\bar{x} - 2 \cdot s$ to $\bar{x} + 2 \cdot s$, and $\bar{x} - 3 \cdot s$ to $\bar{x} + 3 \cdot s$. Compare these percentages to the Empirical Rule, and comment.

8.3	245-246	40, 41, 42, 43, 45, 48, 49, 54, 56
9.1-9.2	282-283	13, 14, 15ab, 16ab, 18, 20, 26, 27
9.3	289	34, 35, 36, 37, 38, 39
10.1-10.3	312-313	43, 45, 46, 48, 50, 52
10.4	317	82, 83, 84, 85
11.1-11.2	322	1, 2, 4, 5

For the Section 11.2 exercises state the null and alternative hypotheses, define a Type I error and a Type II error in terms of the problem, discuss the consequences of these errors, and discuss the relative values you would want α and β to be considering the consequences of the errors.

11.3	340-341	45, 47, 49, 52, 53, 56
12.1-12.2	365-366	34, 35, 43, 45, 46
12.4	380-381	77, 80, 89, 90, 92, 93, 99
Review Ex.	387-388	104, 105, 107, 111c, 113, 114

SECTIONS	PAGES	EXERCISES
13.1-13.2	409	33ab, 34, 35ab, 36, 37ab
13.4	424-425	65ab, 66ab, 67, 69ab, 70
13.6	443-444	104, 105ac, 106, 107, 109, 111b
Review Ex.	448-449	120, 122, 123, 124, 125, 126a, 128a
18.1-18.5		
18.7-18.8	651, 653	85, 96

For Exercise 85 complete the following:

1. Obtain a scatterplot of repair costs (in dollars) vs. age of the machine (in months) with the prediction equation shown on the plot. Interpret the scatterplot.
2. Give the prediction equation and interpret the intercept and slope estimates in terms of this problem.
3. Are repair costs linearly related to the age of the machines? Use a .05 level of significance.
4. Fully describe the strength of the linear relationship.
5. If appropriate, use 95% confidence to predict the monthly repair costs of a machine that is 100 months old.
6. If appropriate, use 95% confidence to estimate the average monthly repair costs of all machines that are 100 months old.
7. If appropriate, use 95% confidence to predict the monthly repair costs of a machine that is 4 months old.

For Exercise 96 complete the following:

1. Obtain a scatterplot of total debt (in dollars) vs. number of hours the television is turned on with the prediction equation shown on the plot. Interpret the scatterplot.
2. Give the prediction equation and interpret the intercept and slope estimates in terms of this problem.
3. Is total debt linearly related to the television hours? Use a .05 level of significance.
4. Fully describe the strength of the linear relationship.
5. If appropriate, use 95% confidence to predict the total debt if the television is turned on for 50 hours per week.
6. If appropriate, use 95% confidence to estimate the average total debt for all families that have the television turned on for 50 hours per week.
7. If appropriate, use 95% confidence to estimate the average total debt of all families that have the television turned on for 140 hours per week.