

Sample Problems for Exam 1



Course : Introduction to Probability and Statistics, Math 113 Section 3234

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- Exam 1 will be held in class on Monday Sept 24th.
 - Syllabus for Exam 1: Sections covered from Chapters 1, 2 & 3.
 - Review for Exam 1 will be held on Wednesday Sept 19th.
 - Best way to prepare for the midterm is to solve the Classworks, Sample problems and MyStatLab problems.
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1. (**Descriptive Statistics**) For the following test score data:

71, 73, 83, 65, 96, 55, 98, 83, 66, 75, 80

- (a) Find the mean and median.
- (b) Find the mode and mid-range.
- (c) Draw a stemplot diagram.
- (d) Calculate standard deviation for the test.

2. (**Descriptive Statistics**) The following data show the number of dresses completed in a week by each of the 20 employees of two different dress making factories.

| | | | | | | | | | | | |
|------------|----|----|----|----|----|------------|----|----|----|----|----|
| | 17 | 24 | 16 | 28 | 11 | | 7 | 26 | 11 | 9 | 24 |
| Factory A: | 25 | 5 | 7 | 10 | 30 | Factory B: | 17 | 14 | 32 | 5 | 28 |
| | 9 | 4 | 31 | 21 | 13 | | 19 | 25 | 28 | 31 | 12 |
| | 35 | 26 | 21 | 19 | 28 | | 31 | 27 | 25 | 36 | 19 |

For the above data sets:

- (a) Find the range for each factory
 - (b) Make frequency distribution for each factory using 8 intervals.
 - (c) Construct histograms for each factory.
 - (d) Construct stemplots for each factory.
 - (e) Calculate the mean and median for each data set.
3. (**z-scores**) Anne Elk has taken a series of admissions tests at prestigious Goode University. She receives a score of 1020 on the Math Assessment Test and 1100 on the English Assessment Test. Given that the mean on the Math test was 1000 with a standard deviation of 40 and that the mean on the English test was 1000 with a standard deviation of 80, decide if the tests indicate whether Anne is better prepared for English or Math. Explain.

4. (**Bar graph**) Water sports have become very popular as the following table indicates:

| Water Sport | Number of People (in millions) |
|-------------------|--------------------------------|
| Water skiing (WS) | 10 |
| Sailing (SA) | 4 |
| Scuba Diving (SD) | 3 |
| Surfing (SF) | 1 |

Draw a bar graph for the above information.

5. (**z-scores**) There are eight particularly polluted lakes in New York state and six particularly polluted lakes in New Jersey. The following results on the amount of pollution were obtained by two groups.

| New York Lake | Pollution | New Jersey Lake | Pollution |
|---------------|-----------|-----------------|-----------|
| A | 22 | Q | 68 |
| B | 15 | R | 75 |
| C | 29 | S | 61 |
| D | 33 | T | 70 |
| E | 24 | U | 70 |
| F | 17 | V | 76 |
| G | 37 | | |
| H | 28 | | |

Which of the above 14 lakes is most polluted ? Which of the above 14 lakes is least polluted ?

6. (**Descriptioive Statistics**) All new-born children are measured and weighed at birth. During the week of Sept 1st to 5th, 20 babies were born. Their weights (in ounces) at birth were as follows:

112 96 105 110 100 108 85 132 147 127
103 91 108 99 7 107 116 92 125 140 131

- (a) Find the mean, median, mode, mid-range.
(b) Find the standard deviation and variance.