

Math 206 - Test 2

March 14, 2012

Name _____

Score _____

Show all work. Supply explanations where necessary.

1. (4 points) The pH level of the water in a volcanic hot spring was measured daily for 15 days. The data are shown in the diagram below.

6		0	1				
5		5	7	7	8		
4		2	3	3	8	8	8
3		5	8	8			

4 | 2 represents 4.2

- (a) What is the name of this type of display?
- (b) What are some of the advantages and disadvantages of this type of display?
- (c) Could a line graph be an appropriate type of display for this data? Explain.
- (d) What was the median pH level?
2. (3 points) An experiment has two outcomes, O_1 and O_2 , with probabilities $4/7$ and $3/7$, respectively. Explain how this experiment could be simulated.

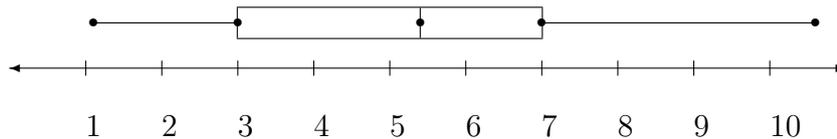
3. (3 points) Consider the following collection of test scores.

98 52 98 45
37 45 98 79

(a) Without using your calculator's statistical features, find the mean, median, and mode of the test scores.

(b) Which is not an appropriate measure of the center of the data set and why?

4. (6 points) The boxplot shown below describes a certain collection of data. Find approximate values for the median, first and third quartiles, and the interquartile range. Based on your approximations, what would be the cutoff values for outliers?



5. (3 points) Following are the ages of 30 children who participated in Krug School's science fair.

10 10 11 10 13 8 10 13 14 9
14 13 10 14 11 9 13 10 11 12
11 12 14 13 12 8 13 14 9 14

- (a) Sketch a line plot (dot plot) that displays the data.

- (b) Use your calculator to compute the standard deviation.

6. (3 points) A contestant on a game show must select a suitcase containing money or be paid by the host to stop playing. There are 10 suitcases: six contain \$10, two contain \$100, one contains \$1000, and one contains \$10000. How much should the host pay the contestant to stop playing? (Hint: Think about expected value.)

7. (5 points) Fred has ten projects that are due next week. He has already decided that he will not do any of them on Saturday or Sunday. So he has ten projects that he will randomly schedule on the five remaining days. (Each project will be randomly assigned a day.)
- (a) Explain how Fred could use a random-digit table to assign his projects to days.

 - (b) Use your random-digit table to do eight trials.

 - (c) Based on your trials, what is the probability that Fred will have at least one day off (in addition to Saturday and Sunday).
8. (3 points) A paper company made an annual revenue of \$275 million: \$26 million from the sales of toilet paper, \$38 million from the sales of paper cups, \$20 million from the sales of paper plates, \$32 million from the sales of tissues, \$120 million from the sales of napkins, and \$39 million from the sales of miscellaneous other paper products.
- (a) Explain why a circle graph is particularly appropriate for displaying this data.

 - (b) Recall that there are 360 degrees in a circle. Suppose you constructed the circle graph corresponding to the data above. What should be the degree measure of the angle in the portion associated with napkins?

10. (3 points) The class mean on a reading test was 27.5 out of 40 possible points. The 19 girls in the class scored a total of 532 points. If there were 11 boys in the class, what was the mean of the boys' scores?
11. (2 points) Willis scored 95 on a test with mean 82 and standard deviation 8.4. Gloria scored 193 on a test with mean 156 and standard deviation 22. Compute their z -scores. Who had a better score?
12. (3 points) Joe had scores of 90, 95, 85, 90, and 20 on his tests. Without computing them, which measure of center (mean, median, mode) do you think Joe would want his teacher to use for his "average" test score? Explain.

13. (8 points) Following are the weights, in pounds, of 15-day-old pigs raised on two different feeds.

Feed A: 7.2, 9.8, 12.3, 13.1, 13.3, 8.4, 10, 11.6, 9.9, 11.5, 5.8, 9.8, 12.2, 12.3

Feed B: 6.8, 8.5, 9.5, 9.2, 10.1, 11.3, 11.7, 7.9, 7.5, 13.3, 6.2, 5.8

- (a) For each data set (separately), compute the median, the first and third quartiles, the IQR, and the outlier cutoffs.

- (b) On graph paper, sketch the boxplot for each feed. Sketch one boxplot above your number line and one boxplot below.

- (c) Compare the boxplots. Which feed is better and why do you think so?