

Math 116 Fall 2003—Practice Problems for Midterm

1. Consider the following set of data:

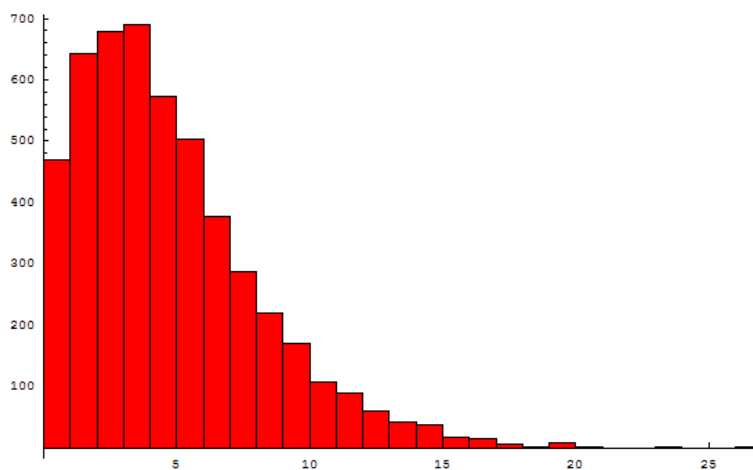
12.1	11.7	1.7	10.6	14.6	14.4	-5.2	-1.3	14.6	15.3
10.4	13.2	15.9	13.4	18.5	11.7	13.9	14.9	5.1	10.6
1.3	15.4	9.3	12.0	-0.2	5.7	-2.1	13.5	10.2	12.8

(a) Construct a stem-leaf plot or a histogram of the data and comment on key features of the data.

(b) Compute the median, mean, and standard deviation of the data

(c) Construct a box-plot of the data.

2. Consider the following histogram for a set of data:



Which one of the following is the most plausible set of values for the median, mean \bar{x} and standard deviation s of this data? Explain.

(a) median = 4.7, \bar{x} = 4.0, s = 1.4, (b) median = 4.7, \bar{x} = 4.0, s = 3.4

(c) median = 4.7, \bar{x} = 4.0, s = 10.4, (d) median = 4.0, \bar{x} = 4.7, s = 1.4

(e) median = 4.0, \bar{x} = 4.7, s = 3.4, (f) median = 4.0, \bar{x} = 4.7, s = 10.4

3. Bill is going to make a 3-egg omelet, but little does he know that 2 of the eggs in the dozen eggs he just bought are poisoned. What is the probability that Bill's omelet will be OK?

4. Andy, Bill, and Claudia all hate each other. If they have 7 theater tickets in a row with 4 other people, and everyone sits down in a random order, what is the probability that none of Andy, Bill, and Claudia will be next to one another?

5. On my bureau, I have a dish containing 10 quarters, 3 nickels, 3 dimes, and 20 pennies. Rushing out the door, I grab 4 coins at random from the dish. What is the probability I will have one of each type of coin? What is the probability I will pick up two of one type of coin and two of another?

6. I have two jars of pickles, jar A with 70% spicy pickles and jar B with 20% spicy pickles. Unfortunately, the labels have fallen off the jars so I can no longer tell which is which.

(a) If I choose a jar at random, and then choose a pickle at random from that jar, what is the probability that I choose a spicy pickle?

(b) Let's say that I choose a jar at random, and then choose a pickle from that jar and find that it is spicy. Given that event, what is the probability that I chose jar A?

7. Seventy percent of the cars in Smallville own "the Club". Statistics show that 1% of cars with Clubs are stolen each year, as compared to 3% of cars without Clubs. If you find an abandoned stolen car outside your house in Smallville, what is the probability that it had a Club?

8. Ninety-five percent of hurricanes in the Atlantic miss Philadelphia. If we assume that each hurricane's path is independent of every other one, what is the probability that the next four hurricanes will miss Philadelphia?

9. Consider rolling three dice. Let A be the event that exactly two of the dice match, and let B be the event that you roll a 6 (total of the three dice). Are A and B independent?