

Homework Set 1

MAT 203, Elementary Statistics.

Due at the beginning of class on 10 March. Please show your work to receive full credit.

Homework Policy. The point of homework is to learn by doing. I have no problem if you work in groups, use the internet or use human resources to help you complete the assignment. I do ask that you not copy someone else's work. Please work through all the mathematics yourself. By submitting your homework, you implicitly signify that it is your own.

1. A survey is done of all students in Mr. Harvey's Machine class. It is found that 53% prefer snicker bars, 25% would rather have a milky way bar and the remaining 22% like M & M's the best. Is this survey a done over a population or a sample? What kind of data type was collected?

2. Mr. Johnson times his ten fastest sprinters using an old stop watch. He finds that the average speed for 100 yards is 20.3 seconds with a standard deviation of 2.2 seconds. What kind of data was collected? What type of error might his measurements be subject to?

Data Set 1. {11, 13, 18, 12, 19, 24, 11, 15, 19, 16, 13, 17, 15, 14, 18, 19, 11, 10, 14, 17, 18, 19, 15, 18, 15, 14, 12, 16, 17, 20, 17, 15, 16, 14, 16, 19, 21, 18, 17, 13, 15, 17, 16, 15, 13, 17, 16, 18, 15, 14, 16, 14, 19, 11, 12, 13, 17, 15, 16, 13}

3. Make a histogram of the frequency distribution. Treat each value as its own class.
4. Find the relative frequency for each value.
5. What is the range of the Data Set 1?
6. Find the mean of Data Set 1.
7. Find the mode of the Data Set 1.
8. Find the median of the Data Set 1.
9. Find Q_1, Q_2, Q_3 .
10. Is the distribution Uniform, Symmetric or Skewed? Justify your answer.
11. What is the sample variance of Data Set 1?
12. What is the sample standard deviation of Date Set 1?
13. Use Chebychev's Theorem to find the minimum fraction of data points lying within 1.5 standard deviations of the mean.
14. Problem 23, page 94 of Larson and Farber.
15. Problem 49, page 99 of Larson and Farber.
16. Problem 50, page 99 of Larson and Farber.
17. Find the z-score for a data point with a value of 13 in Data Set 1. Interpret your answer.
18. What is the probability of drawing a face card from a standard deck of cards?
19. What is the probability of drawing two face cards in sequence from a deck of cards? Replace the first card and shuffle the the deck before selecting the second card.
20. What is the probability of drawing two face cards from a deck if you don't replace the first card after drawing it?