

Math 111 | HW # 1

- Classify each of the following data according to the *level of measurement* (that is state whether it is nominal, ordinal, interval, or ratio):
 - The telephone numbers in a telephone directory.
 - The scores of a class in an exam.
 - Absolute temperatures (that is temperatures measured in Kelvin degrees).
 - Motion Picture Association of America ratings description (G, PG, PG-13, R, NC-17).
 - Average monthly precipitation in inches for New York, NY.
 - Average monthly temperature (in degrees Fahrenheit) for New York, NY.
- A group of 25 people were observed regarding their TV habits and were found to spend the following number of hours per week watching television:

30	32	34	36	36
37	39	39	41	41
42	42	43	43	44
45	45	45	46	47
47	49	49	52	53

In order to display the data in clearer form,

- determine the class width for four (4) classes,
 - construct a frequency distribution showing the class limits for the four classes,
 - in the table, show the class boundaries and the class marks,
 - construct a histogram, labeling the class boundaries.
- A consumer testing service obtained the following mileage (in miles per gallon) in five test runs for three different types of compact cars:

	First Run	Second Run	Third Run	Fourth Run	Fifth Run
Car A	28	32	28	34	30
Car B	31	31	29	29	31
Car C	32	29	28	32	30

- If the manufacturer of Car A wants to advertise that their car performed the best in this test, which measure of central tendency (mean, median or mode) should be used to support their claim?
 - Which measure should the manufacturer of Car B use to claim that their car performed best, mean median or mode?
 - Which measure should the manufacturer of Car C use to support a similar claim?
- Florida's age distribution has mean value $\mu = 39.2$ and standard deviation $\sigma = 24.8$ (measured in years). Use Chebyshev's theorem to find an interval such that

- (a) the age in years of at least 75% of Florida's population is contained within that interval,
(b) the age in years of at least 88.9% of Florida's population is contained within that interval,
(c) the age in years of at least 93.8% of Florida's population is contained within that interval.
5. Calculate the range, mean, median, first and third quartiles, interquartile range, mode, variance, and standard deviation for the following population data.

47 59 50 56 56 51 53 57 52 49

6. Find the mean, the range, and the standard deviation for the following set of sample data.

10 9 12 11 8 15 9 7 8 6

7. Determine the range and the sample standard deviation of the following data:

x	f
10.3	7
22	12
38.5	5
43.2	2

8. The mean value of the scores in a Statistics exam was 85 with a standard deviation of 4. Find an interval that contains at least 75% of the scores in that exam.