

$$\text{angle} = (\text{relative frequency}) \cdot 360^\circ \quad Z = \frac{X - \mu}{\sigma}$$

$$\mu = \frac{x_1 + x_2 + \cdots + x_n}{n} \quad \sigma = \sqrt{\frac{(x_1 - \mu)^2 + (x_2 - \mu)^2 + \cdots + (x_n - \mu)^2}{n}}$$

$$\mu = \frac{f_1x_1 + f_2x_2 + \cdots + f_nx_n}{f_1 + f_2 + \cdots + f_n} \quad \sigma = \sqrt{\frac{f_1(x_1 - \mu)^2 + f_2(x_2 - \mu)^2 + \cdots + f_n(x_n - \mu)^2}{f_1 + f_2 + \cdots + f_n}}$$

1. (12pts) The National Hurricane Center reported that the number of North Atlantic tropical storms reaching the U.S. coast in each of the years 1986–1995 were 6, 7, 12, 11, 14, 8, 7, 8, 7, 19, in order by years.
- Find the range.
  - Find the median.
  - Find the mean.
  - Find the standard deviation.

**2.** (13pts) A calculus 3 class had the final grades given in the table. Assume the usual association of grades with numbers (A=4, B=3, C=2, D=1, E=0).

a) Find the median.

b) Find the mean.

c) Find the standard deviation.

Grade	Frequency
A	6
B	10
C	5
D	1
E	1

3. (8pts) The two tables below represent heights, in inches, of college students in two classes.

a) Draw a histogram for each class.

b) By looking at the histograms, which table should give you a bigger standard deviation? Explain why.

Height	Students
60–64	5
64–68	7
68–72	8
72–76	7
76–80	3

Height	Students
60–64	2
64–68	4
68–72	15
72–76	6
76–80	3

4. (10pts) Compute the following probabilities for a standard normal distribution. Draw a picture showing which area you are computing.

a)  $P(-1.13 < Z < 0.85)$

b)  $P(Z \leq 2.5)$

5. (7pts) Suppose the scores for an IQ test are normally distributed with mean 100 and standard deviation 15. If a random test taker is chosen, what is the probability their score is between 85 and 98? Draw a picture showing which area you are computing.

**Bonus.** (5pts) In a standard normal distribution, which score falls at the  
a) 34th percentile?  
b) 70th percentile?