

Day 7

1. The following frequencies are obtained when two dice are rolled and their sum is found:

Sum	2	3	4	5	6	7	8	9	10	11	12
Freq.	1	2	3	4	5	6	5	4	3	2	1

- Draw a histogram of the distribution.
 - The mean of the distribution is 7 and the standard deviation is about 2.5. Is the data normally distributed? Explain your answer.
2. The scores on a math final at a large university were normally distributed with a mean of 85 and a standard deviation of 4.
- Draw the normal curve and label the mean and $\pm 1, 2, 3$ standard deviations
 - What percent of students scored above 93?
 - What percent of students scored below 81?
 - Use your calculator to find the percentage of students who scored between 70 and 90.
 - If 1000 students took the final, about how many scored 95 or above?
3. The useful life of a car battery is normally distributed with a mean of 100,000 miles and a standard deviation of 10,000 miles.
- Draw the normal curve and label the mean and $\pm 1, 2, 3$ standard deviations
 - About what percent of batteries will last between 90,000 and 110,000 miles?
 - Use your calculator to find the percentage of batteries that will last less than 85,000 miles.
 - What is the probability that your next car battery will last more than 105,000 miles?
4. The maker of M&M candies claims that the proportion of yellow candies in a bag of M&Ms are approximately normally distributed with a mean of 0.15 with a standard deviation of 0.03.
- Would you be surprised to open a bag of M&M's and find no yellow candies? Explain.
 - Would you be surprised to open a bag of M&M's and find $\frac{1}{3}$ of the bag is yellow? Explain.
 - About what percent of the time would you expect to open a bag of candies and find 0.10 to 0.20 yellow candies?