| 85 | 87 | 94 | 83 | 81 | 92 | 90 | 78 |
| 83 | 90 | 88 | 79 | 88 | 88 | 80 | 83 |

Using the scores above. Find the following. Round to the nearest whole number.

1) $\mu(\bar{x}) = $ _____ (mean)   5) Range = _____

2) $\sigma = $ _____ (standard deviation)   6) Outlier = _____

3) MEDIAN = _____

4) mode = _____

7) Draw a NORMAL distribution curve using the scores above AND whole numbers.

8) What percent of the students scored above a 76?

9) What percent scored between 81 and 96?

10) What percent scored between 91 and 96?

11) What percent scored below an 81?

12) What percent scored between 71 and 96?

13) How many students scored within one standard deviation?

14) How many students scored above two standard deviations?

15) How many students scored below 2 standard deviation?

16) What percent scored above the mean?

17) What is the difference between the mean and median?

18) What percent scored below a 71?

For each question, construct a normal distribution curve and label the horizontal axis. Then answer each question.

19. The mean life of a tire is 30,000 km. The standard deviation is 2000 km.
    a) 68% of all tires will have a life between ____ km and ____ km.
    b) 95% of all tires will have a life between ____ Km and ____ Km.
    c) What percent of the tires will have a life that exceeds 34,000 Km?
    d) If a company purchased 5000 tires, how many tires would you expect to last more than 28 000 km?

20. The shelf life of a particular dairy product is normally distributed with a mean of 12 days and a standard deviation of 3 days.
    a) About what percent of the products last between 6 and 15 days?
    b) About what percent of the products last between 3 and 15 days?
    c) About what percent of the products last 3 days or less?
    d) About what percent of the products last 12 or more days?

21. A line up for tickets to a local concert had an average (mean) waiting time of 20 minutes with a standard deviation of 4 minutes.
    a) What percentage of the people in line waited for more than 22 minutes?
    b) If 4000 ticket buyers were in line, how many of them would expect to wait for less than 16 minutes?

22. The mean life of a battery is 50 hours with a standard deviation of 6 hours. The manufacturer advertises that they will replace all batteries that last less than 38 hours. If 40,000 batteries were produced, how many would they expect to replace?

23. In an Oreo factory, the mean mass of a cookie is given as 40 g. For quality control, the standard deviation is 2 g.
    a) If 10,000 cookies were produced, how many cookies are within 4 g of the mean?
    b) Cookies are rejected if they weigh more than 44 g or less than 36 g. How many cookies would you expect to be rejected in a sample of 20,000 cookies?

24. The speeds of cars on the highway have a mean of 95 km/h with a standard deviation of 5 km/h.
    a) What percentage of cars averaged less than 80 km/h?
    b) If a police car stopped cars that were going more than 105 km/h, how many cars would they stop if there were 5000 cars on the highway?

25. The Floppy Disk Company makes 3.5 inch floppy disks for disk drives that are 3.7 inches wide. The size of a manufactures disk is normally distributed with a standard deviation of 0.1 inches. The company manufactures 1000 disks every hour.
    a) What % of the disks would you expect to be greater than 3.5 inches?
    b) In one hour, how many disks would you expect to be between 3.4 inches and 3.7 inches?
    c) About how many disks will be unable to fit in the disk drive (3.7 inch won't fit)?