The college Physical Education Department offered an Advanced First Aid course last semester. The scores on the comprehensive final exam were normally distributed, and the z scores for some of the students are shown below.

Linda 1.10	Juan 1.70	Robert -2.00
John 0.00	Susan -0.80	Joel 1.60

Which of these students scored above the mean?

Which of these students scored one standard deviation away from the mean?

Which of these students scored between one-half and one standard deviations from the mean?

If the mean score was 150 with a standard deviation of 20, what was the final exam score for Joel and Susan?

The length of time needed to complete a certain test is normally distributed with a mean of 60 minutes and a standard deviation of 10 minutes.

a. What is the percent of people who take between 45 and 65 minutes to complete the test?

b. Find the time it takes to contain the middle 95% of completion time for all people taking the test.

Items produced by a manufacturing process are supposed to weigh 90 grams. The manufacturing process is as such, however, that there is variability in the items produced and they do not all weigh exactly 90 grams. The distribution of weights can be approximated by a normal distribution with a mean of 90 grams and a standard deviation deviation of 1 gram. What percent of items will either weigh less than 87 grams or more than 93 grams?

Runner’s world reports that the times of the finishers in the New York City 10-km run are normally distributed with a mean of 61 minutes and a standard deviation of 9 minutes.

Find the percent of runners who take more than 70 minutes to finish.

Find the percentage of runners who finished in less than 43 minutes.

The best male long jumpers for State College since 1973 have averaged a jump of 263 inches with a standard deviation of 14 inches. The best female long jumpers have averaged 201.2 inches with a standard deviation of 7.7 inches. This year Joey jumped 275 inches and his sister, Carla, jumped 207 inches. Both are State College students. Assume that the lengths are approximately normal. Within their groups, which athlete had the more impressive performance? Why?

The next year a freshmen at State College jumped and was in the 45^{th} percentile. How long was his jump?

The next year they improved to the 85^{th} percentile, how long was the jump in their sophomore year?

The score of a reference on the Wechsler Intelligence Scale for children (WISC) are normally distributed with a mean of 100 and a standard deviation of 15.

Approximately what percent of the scores fall in the range from 70 to 130?

A score in what range would represent in the top 16% of the scores?

A lunch stand in the business district has a mean daily gross income of $420 with a standard deviation of $50. Assume that daily gross incomes are normally distributed.

If a randomly selected day has a gross income of $520, then how many standard deviation away from the mean is that day's gross income?

Determine the standardized value and percentage for a daily income of $495.

What percentage of of values are between $400 and $500?

The average number of acres burned by forest and range fires in a large New Mexico county is 4,300 acres per year, with a standard deviation of 750 acres. The distribution of the number of acres burned is normal. What is the probability that between 2,500 and 4,200 acres will be burned any given year?

The Edward's Theater chain has studied its movie customers to determine how much money they spend on concessions. The study revealed that the spending distribution is approximately normally distributed with a mean of $4.11 and a standard deviation of $1.37.

What percentage of customers will spend less than $3.00 on concessions?

What spending amount corresponds to the top 87^{th} percentile?

What percentage of people spend less than $2.50 or more than $5.00?