

**LESSON
6.3****Real-Life Application:
When Will I Ever Use This?**

For use with the lesson "Use Normal Distributions"

Charity Fundraisers

The words charity and philanthropy are two interchangeable terms used to describe generous acts or donations to help aid people or organizations that need support. The American Cancer Society is an example of a nationwide health organization, which is dedicated to eliminating cancer and saving lives through research, education, and service. A large portion of the society's income comes from public donations.

Each year, large sums of money are donated and collected for numerous philanthropic organizations. Since 1980, charitable donations in the United States have more than quintupled to well over \$240 billion. In many countries, philanthropy has been included in government policy in the form of tax exemptions for donations to philanthropic organizations. Today, the focus of most organizations has shifted from the relief of immediate need to the long-term goal of eliminating future need.

In Exercises 1–5, use the following information.

Suppose several high school athletic teams in a city are sponsoring a walk-a-thon to raise money for a local charity. A certain route is mapped out through the city and each athlete finds sponsors to donate money for the walk. If an athlete completes the walk under a certain time, extra money will be donated.

You are responsible for recording the finishing times for each of the athletes. After collecting all of the data, you determine that the finishing times are normally distributed with a mean of 2.8 hours and a standard deviation of 0.4 hour.

1. What percent of the athletes finished the walk in less than 2 hours?
2. What percent of the athletes finished the walk between 2 and 3.6 hours?
3. What is the probability that a randomly chosen athlete completed the walk between 2 and 3.2 hours?
4. What is the probability that two randomly chosen athletes completed the walk in 3.6 hours or more?
5. What is the probability that four randomly chosen athletes completed the walk between 2 and 2.8 hours?