

LESSON
23-2

Normal Distributions

Practice and Problem Solving: C

The stride lengths, in feet, in a group of adult males are normally distributed with a mean of 2.5 feet and a standard deviation of 0.04 feet. Use this information for Problems 1–3.

1. What is the probability that the stride length of a randomly selected adult male is less than 2.58 feet?

2. What is the probability that the stride length of a randomly selected adult male is between 2.38 feet and 2.46 feet?

3. What is the probability that the stride length of a randomly selected adult male is between 2.42 feet and 2.54 feet?

Scores on a test are normally distributed with a mean of 81.2 and a standard deviation of 3.6. Use the table below to find each probability.

z	-2.5	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2	2.5
Area	0.01	0.02	0.07	0.16	0.31	0.5	0.69	0.84	0.93	0.98	0.99

4. A randomly selected student scored below 74.

5. A randomly selected student scored above 88.4.

6. A randomly selected student scored between 81.2 and 84.8.

7. A randomly selected student scored between 77.6 and 88.4.

Solve.

8. The stride lengths, in feet, in a group of adult females are given below. If standard deviation in the stride lengths is 0.02 ft, do the data appear to be normally distributed? Explain.

1.78	1.85	1.87	1.96	2.02
2.04	2.05	2.05	2.17	2.19
2.23	2.25	2.26	2.28	2.35
2.38	2.41	2.43	2.55	2.68