1. Given a standard normal distribution, find the area under the curve which lies
2. to the left of z = 1.43;
3. to the right of z = −0.89;
4. between z = −2.16 and z = −0.65;
5. to the left of z = −1.39;
6. to the right of z = 1.96;
7. between z = −0.48 and z = 1.74.
8. Find the value of z if the area under a standard normal curve
9. to the right of z is 0.3622;
10. to the left of z is 0.1131;
11. between 0 and z, with z > 0, is 0.4838;
12. between –z and z, with z > 0, is 0.9500.
13. Given a standard normal distribution, find the value of k such that
14. P(Z < k) = 0.0427;
15. P(Z > k) = 0.2946;
16. P(−0.93 < Z < k) = 0.7235.
17. Given a normal distribution with μ = 30 and σ = 6, find
18. the normal-curve area to the right of x = 17;
19. the normal-curve area to the left of x = 22;
20. the normal-curve area between x = 32 and x =41;
21. the value of x that has 80% of the normal-curve area to the left;
22. the two values of x that contain the middle 75% of the normal-curve area.
23. Given the normally distributed variable X with mean 18 and standard deviation 2.5, find
24. P(X < 15)
25. the value of k such that P(X < k) = 0.2236;
26. the value of k such that P(X > k) = 0.1814;
27. P(17 < X < 21).
28. A research scientist reports that mice will live in an average of 40 months when their diets are sharply restricted and then enriched with vitamins and proteins. Assuming that the lifetimes of such mice are normally distributed with a standard deviation of 6.3 months, find the probability that a given mouse will live
29. more than 32 months;
30. less than 28 months;
31. between 37 and 49 months.
32. The loaves of rye bread distributed to local stores by a certain bakery have an average length of 30 centimeters and a standard deviation of 2 centimeters. Assuming that the lengths are normally distributed, what percentage of the loaves are
33. longer than 31.7 centimeters?
34. between 29.3 and 33.5 centimeters in length?
35. shorter than 25.5 centimeters?
36. A soft-drink machine is regulated so that it discharges an average of 200 milliliters per cup. If the amount of drink is normally distributed with a standard deviation equal to 15 milliliters,
37. what fraction of the cups will contain more than 224 milliliters?
38. what is the probability that a cup contains between 191 and 209 milliliters?
39. how many cups will probably overflow if 230 milliliter cups are used for the next 1000 drinks?
40. below what value do we get the smallest 25% of the drinks?