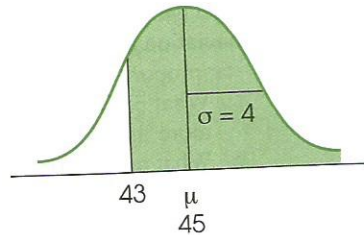


FIGURE 6.18

A sketch of the distribution for Demonstration 6.1.



STEP 3 Find the appropriate proportion in the unit normal table. Ignoring the negative size, locate $z = -0.50$ in column A. In this case, the proportion we want corresponds to the body of the distribution and the value is found in column B. For this example,

$$p(X > 43) = p(z > -0.50) = 0.6915$$

PROBLEMS

- A local hardware store has a "Savings Wheel" at the checkout. Customers get to spin the wheel and, when the wheel stops, a pointer indicates how much they will save. The wheel can stop in any one of 50 sections. Of the sections, 10 produce 0% off, 20 sections are for 10% off, 10 sections for 20%, 5 for 30%, 3 for 40%, 1 for 50%, and 1 for 100% off. Assuming that all 50 sections are equally likely,
 - What is the probability that a customer's purchase will be free (100% off)?
 - What is the probability that a customer will get no savings from the wheel (0% off)?
 - What is the probability that a customer will get at least 20% off?
- A psychology class consists of 14 males and 36 females. If the professor selects names from the class list using *random sampling*,
 - What is the probability that the first student selected will be a female?
 - If a random sample of $n = 3$ students is selected and the first two are both females, what is the probability that the third student selected will be a male?
- What are the two requirements that must be satisfied for a random sample?
- Draw a vertical line through a normal distribution for each of the following z -score locations. Determine whether the tail is on the right or left side of the line and find the proportion in the tail.
 - $z = 1.00$
 - $z = 0.50$
 - $z = -1.25$
 - $z = -0.40$
- Draw a vertical line through a normal distribution for each of the following z -score locations. Determine whether the body is on the right or left side of the line and find the proportion in the body.
 - $z = 2.50$
 - $z = 0.80$
 - $z = -0.50$
 - $z = -0.77$
- Find each of the following probabilities for a normal distribution.
 - $p(z > 1.25)$
 - $p(z > -0.60)$
 - $p(z < 0.70)$
 - $p(z < -1.30)$
- What proportion of a normal distribution is located between each of the following z -score boundaries?
 - $z = -0.25$ and $z = +0.25$
 - $z = -0.67$ and $z = +0.67$
 - $z = -1.20$ and $z = +1.20$
- Find each of the following probabilities for a normal distribution.
 - $p(-0.80 < z < 0.80)$
 - $p(-0.50 < z < 1.00)$
 - $p(0.20 < z < 1.50)$
 - $p(-1.20 < z < -0.80)$
- Find the z -score location of a vertical line that separates a normal distribution as described in each of the following.
 - 5% in the tail on the left
 - 30% in the tail on the right
 - 65% in the body on the left
 - 80% in the body on the right
- Find the z -score boundaries that separate a normal distribution as described in each of the following.
 - The middle 30% from the 70% in the tails.
 - The middle 40% from the 60% in the tails.
 - The middle 50% from the 50% in the tails.
 - The middle 60% from the 40% in the tails.