

CLASSIFY DISTRIBUTIONS

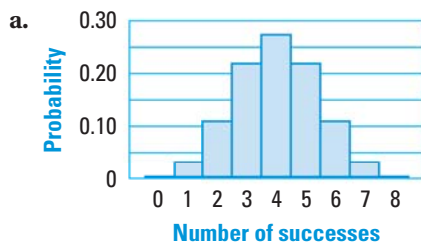
Note that the distribution in Example 1 on p. 724 is symmetric, while the distribution in Example 3 on p. 726 is skewed.

SYMMETRIC AND SKEWED DISTRIBUTIONS Suppose a probability distribution is represented by a histogram. The distribution is **symmetric** if you can draw a vertical line that divides the histogram into two parts that are mirror images. A distribution that is *not* symmetric is called **skewed**.

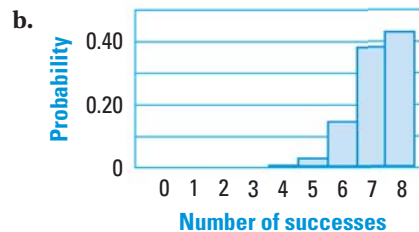
EXAMPLE 5 Classify distributions as symmetric or skewed

Describe the shape of the binomial distribution that shows the probability of exactly k successes in 8 trials if (a) $p = 0.5$ and (b) $p = 0.9$.

Solution



Symmetric; the left half is a mirror image of the right half.



Skewed; the distribution is not symmetric about any vertical line.



GUIDED PRACTICE for Example 5

5. A binomial experiment consists of 5 trials with probability p of success on each trial. Describe the shape of the binomial distribution that shows the probability of exactly k successes if (a) $p = 0.4$ and (b) $p = 0.5$.

10.6 EXERCISES

HOMEWORK KEY

- = **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 5, 21, and 45
- = **TAKS PRACTICE AND REASONING** Exs. 9, 32, 39, 48, 50, and 51
- = **MULTIPLE REPRESENTATIONS** Ex. 47

SKILL PRACTICE

- VOCABULARY** Copy and complete: A probability distribution represented by a histogram is ? if you can draw a vertical line dividing the histogram into two parts that are mirror images.
- WRITING** *Explain* the difference between a binomial experiment and a binomial distribution.

CONSTRUCTING PROBABILITY DISTRIBUTIONS Make a table and a histogram showing the probability distribution for the random variable.

- X = the number on a table tennis ball randomly chosen from a bag that contains 5 balls labeled “1,” 3 balls labeled “2,” and 2 balls labeled “3.”
- W = 1 if a randomly chosen letter is A, E, I, O, or U and 2 otherwise.
- N = the number of digits in a random integer from 0 through 999.

EXAMPLE 1
on p. 724
for Exs. 3–5