# 11.3 EXERCISES

**HOMEWORK KEY**

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 3, 11, and 33

= **TAKS PRACTICE AND REASONING** Exs. 17, 18, 28, 35, 37, and 38

## SKILL PRACTICE

1. **VOCABULARY** Copy and complete: A(n) ___?___ is a bell-shaped curve that is symmetric about the mean.

2. **WRITING** *Describe* how to use the standard normal table to find $P(z \leq 1.4)$.

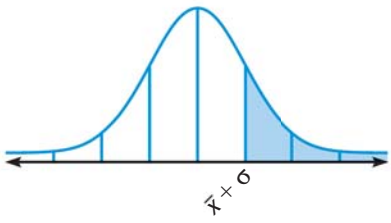
**EXAMPLE 1** on p. 757 for Exs. 3–10

**FIND A NORMAL PROBABILITY** **A normal distribution has mean $\bar{x}$ and standard deviation $\sigma$. Find the indicated probability for a randomly selected $x$-value from the distribution.**

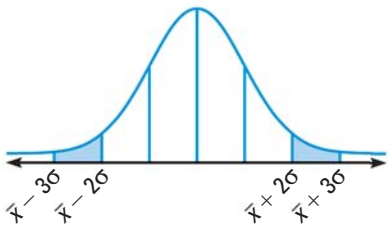
3. $P(x \leq \bar{x} - \sigma)$
4. $P(x \geq \bar{x} + 2\sigma)$
5. $P(x \leq \bar{x} + \sigma)$
6. $P(x \geq \bar{x} - \sigma)$
7. $P(\bar{x} - \sigma \leq x \leq \bar{x} + \sigma)$
8. $P(\bar{x} - 3\sigma \leq x \leq \bar{x})$

**USING A NORMAL CURVE** **Give the percent of the area under the normal curve represented by the shaded region.**

9.




10.




**EXAMPLE 2** on p. 758 for Exs. 11–18

**NORMAL DISTRIBUTIONS** **A normal distribution has a mean of 33 and a standard deviation of 4. Find the probability that a randomly selected $x$-value from the distribution is in the given interval.**

11. Between 29 and 37
12. Between 33 and 45
13. Between 21 and 41
14. At least 25
15. At least 29
16. At most 37

17. **TAKS REASONING** A normal distribution has a mean of 84 and a standard deviation of 5. What is the probability that a randomly selected $x$-value from the distribution is between 74 and 94?

(A) 0.475 (B) 0.68 (C) 0.95 (D) 0.997

18. **TAKS REASONING** A normal distribution has a mean of 51 and a standard deviation of 3. What is the probability that a randomly selected $x$-value from the distribution is at most 48?

(A) 0.025 (B) 0.16 (C) 0.84 (D) 0.975

**EXAMPLE 3** on p. 759 for Exs. 19–27

**STANDARD NORMAL TABLE** **A normal distribution has a mean of 64 and a standard deviation of 7. Use the standard normal table on page 759 to find the indicated probability for a randomly selected $x$-value from the distribution.**

19. $P(x \leq 68)$
20. $P(x \leq 80)$
21. $P(x \leq 45)$
22. $P(x \leq 54)$
23. $P(x \leq 64)$
24. $P(x > 59)$
25. $P(x > 75)$
26. $P(60 < x \leq 75)$
27. $P(45 < x \leq 65)$