14.5 EXERCISES

HOMEWORK KEY

= **WORKED-OUT SOLUTIONS** on p. WS1 for Exs. 5, 9, and 25

= **TAKS PRACTICE AND REASONING** Exs. 18, 19, 28, 30, and 31

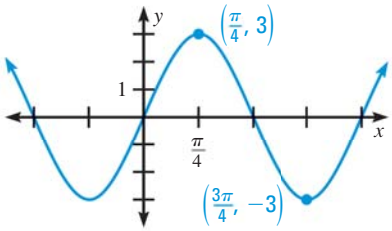
SKILL PRACTICE

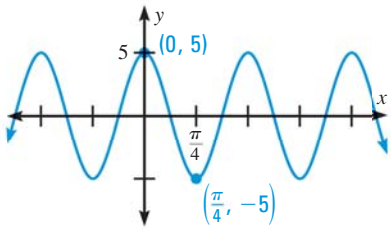
1. **VOCABULARY** What is a sinusoid?

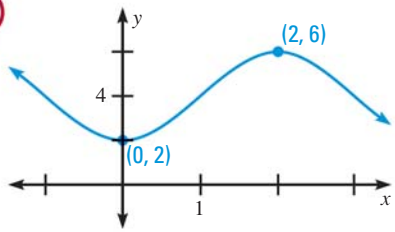
2. **WRITING** *Describe* two methods you can use to model a sinusoid.

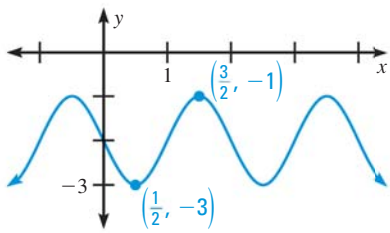
EXAMPLE 1 on p. 941 for Exs. 3–19

WRITING FUNCTIONS **Write a function for the sinusoid.**

3. 

4. 

5. 

6. 

ERROR ANALYSIS ***Describe*** **and correct the error in finding the amplitude and vertical shift for a sinusoid with a maximum point at (2, 10) and a minimum point at (4, −6).**

7. $|a| = \frac{M - m}{2}$

$= \frac{10 - 6}{2}$

$= 2$ ✗

8. $k = \frac{M + m}{2}$

$= \frac{2 + 4}{2}$

$= 3$ ✗

WRITING FUNCTIONS **Write a function for the sinusoid with maximum at point *A* and minimum at point *B*.**

9. $A(\pi, 6), B(3\pi, -6)$

10. $A(0, 4), B(\pi, -4)$

11. $A\left(\frac{\pi}{3}, 5\right), B(0, 3)$

12. $A\left(\frac{\pi}{6}, 8\right), B(0, -6)$

13. $A\left(\frac{3\pi}{4}, 9\right), B(2\pi, 5)$

14. $A(0, 5), B(6, -11)$

15. $A(0, 0), B(4\pi, -4)$

16. $A\left(\frac{\pi}{3}, -3\right), B\left(\frac{\pi}{12}, -7\right)$

17. $A\left(\frac{2\pi}{3}, 0\right), B(0, -12)$

18. **TAKS REASONING** During one cycle, a sinusoid has a minimum at (16, 38) and a maximum at (24, 60). What is the amplitude of this sinusoid?

Ⓐ 8 Ⓑ 11 Ⓒ 22 Ⓓ 49