12.2 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: The constant difference between consecutive terms of an arithmetic sequence is called the __?__ .

2. **WRITING** *Explain* the difference between an arithmetic sequence and an arithmetic series.

EXAMPLE 1
on p. 802
for Exs. 3–11

IDENTIFYING ARITHMETIC SEQUENCES Tell whether the sequence is arithmetic. *Explain* why or why not.

3. $1, -2, -5, -8, -11, \ldots$

4. $16, 14, 11, 6, 3, \ldots$

5. $5, 14, 23, 32, 41, \ldots$

6. $-10, -7, -5, -2, 0, \ldots$

7. $0.5, 1, 1.5, 2, 2.5, \ldots$

8. $20, 10, 5, 2.5, 1.25, \ldots$

9. $\frac{7}{4}, \frac{5}{4}, \frac{3}{4}, -\frac{3}{4}, -\frac{5}{4}, \ldots$

10. $\frac{1}{7}, \frac{2}{7}, \frac{4}{7}, \frac{8}{7}, \frac{16}{7}, \ldots$

11. $-\frac{5}{2}, -1, \frac{1}{2}, 2, \frac{7}{2}, \ldots$

EXAMPLE 2
on p. 803
for Exs. 12–22

WRITING RULES Write a rule for the *n*th term of the arithmetic sequence. Then find a_{20}.

12. $1, 4, 7, 10, 13, \ldots$

13. $5, 11, 17, 23, 29, \ldots$

14. $8, 21, 34, 47, 60, \ldots$

15. $-3, -1, 1, 3, 5, \ldots$

16. $6, 2, -2, -6, -10, \ldots$

17. $25, 14, 3, -8, -19, \ldots$

18. $0, \frac{2}{3}, \frac{4}{3}, 2, \frac{8}{3}, \ldots$

19. $2, \frac{5}{3}, \frac{4}{3}, 1, \frac{2}{3}, \ldots$

20. $1.5, 3.6, 5.7, 7.8, 9.9, \ldots$

ERROR ANALYSIS *Describe* and correct the error in writing the rule for the *n*th term of the arithmetic sequence $37, 24, 11, -2, -15, \ldots$.

21.
Use $a_1 = 37$ and $d = -13$.

$a_n = a_1 + nd$

$a_n = 37 + n(-13)$

$a_n = 37 - 13n$ ✗

22.
The first term is 37 and the common difference is -13.

$a_n = -13 + (n - 1)(37)$

$a_n = -50 + 37n$ ✗

EXAMPLE 3
on p. 803
for Exs. 23–29

WRITING RULES Write a rule for the *n*th term of the arithmetic sequence. Then graph the first six terms of the sequence.

23. $a_{16} = 52, d = 5$

24. $a_6 = -16, d = 9$

25. $a_4 = 96, d = -14$

26. $a_{12} = -3, d = -7$

27. $a_{10} = 30, d = \frac{7}{2}$

28. $a_{11} = \frac{1}{2}, d = -\frac{1}{2}$

29. **TAKS REASONING** For a certain arithmetic sequence, $a_{30} = 57$ and $d = 4$. What is a rule for the *n*th term of the sequence?

(A) $a_n = -63 - 4n$

(B) $a_n = -59 - 4n$

(C) $a_n = -63 + 4n$

(D) $a_n = -59 + 4n$