7.2   Practice B

In Exercises 1–4, tell whether the sequence is arithmetic. Explain your reasoning.

1. 100, 50, 25, 12.5, 6.25, …

2. 0, −4, −8, −12, −16, …

3. $\dfrac{1}{6}, \dfrac{1}{3}, \dfrac{1}{2}, \dfrac{2}{3}, \dfrac{5}{6}, \ldots$

4. $\dfrac{3}{10}, \dfrac{3}{5}, \dfrac{9}{10}, \dfrac{6}{5}, \dfrac{3}{2}, \ldots$

5. Write a rule for the arithmetic sequence with the given description.

    a. The first term is 12 and each term is 7 less than the previous term.

    b. The first term is –8 and each term is 10 more than the previous term.

In Exercises 6–9, write a rule for the *n*th term of the sequence. Then find a_{20}.

6. 37, 29, 21, 13, …

7. $-4, -\dfrac{8}{3}, -\dfrac{4}{3}, 0, \ldots$

8. 0.2, 2.3, 4.4, 6.5, …

9. 2.2, 1.5, 0.8, 0.1, …

10. Describe and correct the error in writing a rule for the *n*th term of the arithmetic sequence −27, −12, 3, 18, 33, ….

$$\boxed{\begin{array}{l} \text{Use } a_1 = -27 \text{ and } d = 15. \\[4pt] a_n = a_1 - (n-1)d \\[4pt] a_n = -27 - (n-1)15 \\[4pt] a_n = -12 - 15n \end{array}}$$

In Exercises 11 and 12, write a rule for the *n*th term of the sequence. Then graph the first six terms of the sequence.

11. $a_{23} = 107,\ d = 4$

12. $a_{13} = 12,\ d = \dfrac{1}{2}$

In Exercises 13–16, write a rule for the *n*th term of the sequence.

13. $a_4 = 44,\ a_9 = 69$

14. $a_9 = -73,\ a_{14} = -158$

15. $a_{15} = 63,\ a_{21} = 99$

16. $a_{15} = 28,\ a_{24} = 34$

17. Find the sum of the positive odd integers less than 500. Explain your reasoning.