Practice 5-7

Describing Number Patterns

Find the common difference of each arithmetic sequence.

1. 10, 16, 22, 28, ...
2. 9, 6, 3, 0, ...
3. −12, −17, −22, −27, ...
4. −11, −8, −5, −2, ...
5. 4, 4\(\frac{1}{2}\), 5, 5\(\frac{1}{2}\), ...
6. 7\(\frac{1}{2}\), 7, 6\(\frac{1}{2}\), 6, ...
7. 9, 10.5, 12, 13.5, ...
8. 1, −1.5, −4, −6.5, ...
9. 8, 9.1, 10.2, 11.3, ...
10. −9, −8.1, −7.2, −6.3, ...
11. −3, −0.6, 1.8, 4.2, ...
12. 6.2, 4.5, 2.8, 1.1, ...

Find the next two terms in each sequence.

13. 1, 7, 13, 19, ...
14. −8, −5, −2, 1, ...
15. 1, −4, −9, −14, ...
16. 1\(\frac{1}{2}\), −1\(\frac{1}{2}\), −2\(\frac{1}{2}\), −3\(\frac{1}{2}\), ...
17. 2.7, 4, 5.3, 6.6, ...
18. 9.8, 0.7, −8.4, −17.5, ...
19. 6\(\frac{1}{3}\), 4\(\frac{2}{3}\), 3, 1\(\frac{1}{3}\), ...
20. 2\(\frac{1}{2}\), 3\(\frac{1}{4}\), −1, −2\(\frac{3}{4}\), ...

Find the fifth, tenth, and hundredth terms of each sequence.

21. 4, 14, 24, 34, ...
22. 14, 6, −2, −10, ...
23. 3, 10, 17, 24, ...
24. −19, −22, −25, −28, ...
25. \(\frac{1}{4}\), \(-\frac{1}{4}\), \(-\frac{3}{4}\), \(-\frac{5}{4}\), ...
26. −1.3, −0.3, 0.7, 1.7, ...
27. 0, 101, 202, 303, ...
28. −1, −100, −199, −298, ...
29. 5, 3.9, 2.8, 1.7, ...
30. −3\(\frac{1}{2}\), −3\(\frac{3}{4}\), −4, −4\(\frac{1}{4}\), ...

Determine whether each sequence is arithmetic. Justify your answer.

31. 0.5, 0.3, 0.1, −0.1, ...
32. −1, 1, −1, 1, ...
33. 3, 6, 12, 24, ...
34. 100, 81, 64, 49, ...
35. Renting a backhoe costs a flat fee of $65 plus an additional $35 per hour.

a. Write the first four terms of a sequence that represents the total cost of renting the backhoe for 1, 2, 3, and 4 hours.

b. What is the common difference?

c. What are the 5th, 24th, 48th, and 72nd terms in the sequence?