Name _____ Class _____ Date _____

Practice

Form G

Arithmetic Sequences

Determine whether each sequence is arithmetic. If so, identify the common difference.

1. 2, 3, 5, 8, . . .

2. 0, −3, −6, −9, . . .

3. 0.9, 0.5, 0.1, −0.3, . . .

4. 3, 8, 13, 18, . . .

5. 14, −15, −44, −73, . . .

6. 3.2, 3.5, 3.8, 4.1, . . .

7. −34, −28, −22, −16, . . .

8. 2.3, 2.5, 2.7, 2.9, . . .

9. 127, 140, 153, 166, . . .

10. 11, 13, 17, 25, . . .

Find the 43rd term of each sequence.

11. 12, 14, 16, 18, . . .

12. 13.1, 3.1, −6.9, −16.9, . . .

13. 19.5, 19.9, 20.3, 20.7, . . .

14. 27, 24, 21, 18, . . .

15. 2, 13, 24, 35, . . .

16. 21, 15, 9, 3, . . .

17. 1.3, 1.4, 1.5, 1.6, . . .

18. −2.1, −2.3, −2.5, −2.7, . . .

19. 45, 48, 51, 54, . . .

20. −0.073, −0.081, −0.089, . . .

Find the missing term of each arithmetic sequence.

21. . . . 23, ■, 49, . . .

22. 14, ■, 28, . . .

23. . . . 29, ■, 33, . . .

24. . . . 14, ■, 15, . . .

25. . . . −45, ■, −39, . . .

26. . . . −5, ■, −2, . . .

27. −2, ■, 2, . . .

28. . . . −6, ■, 2, . . .

29. −34, ■, 77, . . .

30. . . . −45, ■, −12, . . .

31. −2, ■, 456, . . .

32. . . . 34, ■, 345, . . .

33. A teacher donates the same amount of money each year to help protect the rainforest. At the end of the second year, she has donated enough money to protect 8 acres. At the end of the third year, she has donated enough money to protect 12 acres. How many acres will the teacher's donations protect at the end of the tenth year?

34. **Writing** Explain how you know that the sequence 109, 105, 101, 97, 93, . . . is arithmetic.

Name _____ Class _____ Date _____

Practice (continued)

Form G

Arithmetic Sequences

Find the arithmetic mean a_n of the given terms.

35. $a_{n-1} = 5, a_{n+1} = 11$

36. $a_{n-1} = 17, a_{n+1} = 3$

37. $a_{n-1} = -8, a_{n+1} = -9$

38. $a_{n-1} = -0.6, a_{n+1} = 3.8$

39. $a_{n-1} = y - z, a_{n+1} = y$

40. $a_{n-1} = 2t + 3, a_{n+1} = 4t - 1$

41. Open-Ended Write an arithmetic sequence of at least five terms with a positive common difference.

42. Error Analysis On your homework, you write that the missing term in the arithmetic sequence 31, ___, 41, . . . is $35\frac{1}{2}$. Your friend says the missing term is 36. Who is correct? What mistake was made?

43. Reasoning Explain why 84 is the missing term in the sequence 89, 86.5, ___, 81.5, ...

44. Writing Describe the general process of finding a missing term in an arithmetic sequence.

45. You are making an arrangement of cubes in concentric rings for a sculpture. The number of cubes in each ring follows the pattern below.

$$1, 9, 17, 25, 33, \ldots$$

a. Is this an arithmetic sequence? Explain.
b. What are the next three terms?
c. If the sequence continues to the 100th term in this pattern, what will that term be?

46. Each year, a volunteer organization expects to add 5 more people to the number of shut-ins for whom the group provides home maintenance services. This year, the organization provides the service for 32 people.
a. Write a recursive formula for the number of people the organization expects to serve each year.
b. Write the first five terms of the sequence.
c. Write an explicit formula for the number of people the organization expects to serve each year.
d. How many people would the organization expect to serve in the 20th year?