

# Practice 11-2

## Arithmetic Sequences

Find the 43rd term of each sequence.

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|----------------------------|--------------------------------|--------------------------------|
| 1. 12, 14, 16, 18, ...     | 2. 13.1, 3.1, -6.9, -16.9, ... | 3. 19.5, 19.9, 20.3, 20.7, ... |
| 4. 27, 24, 21, 18, ...     | 5. 2, 13, 24, 35, ...          | 6. 21, 15, 9, 3, ...           |
| 7. 1.3, 1.4, 1.5, 1.6, ... | 8. -2.1, -2.3, -2.5, -2.7, ... | 9. 45, 48, 51, 54, ...         |

Is the given sequence arithmetic? If so, identify the common difference.

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|-----------------------------|-----------------------------|------------------------------|
| 10. 2, 3, 5, 8, ...         | 11. 0, -3, -6, -9, ...      | 12. 0.9, 0.5, 0.1, -0.3, ... |
| 13. 3, 8, 13, 18, ...       | 14. 14, -15, -44, -73, ...  | 15. 3.2, 3.5, 3.8, 4.1, ...  |
| 16. -34, -28, -22, -16, ... | 17. 2.3, 2.5, 2.7, 2.9, ... | 18. 127, 140, 153, 166, ...  |

Find the missing term of each arithmetic sequence.

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|--------------------------|--------------------------|-------------------------|
| 19. ... 23, ■, 49, ...   | 20. 14, ■, 28, ...       | 21. ... 29, ■, 33, ...  |
| 22. ... 14, ■, 15, ...   | 23. ... -45, ■, -39, ... | 24. ... -5, ■, -2, ...  |
| 25. -2, ■, 2, ...        | 26. ... -6, ■, 2, ...    | 27. -34, ■, 77, ...     |
| 28. ... -45, ■, -12, ... | 29. -2, ■, 456, ...      | 30. ... 34, ■, 345, ... |

Find the arithmetic mean  $a_n$  of the given terms.

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| 31. $a_{n-1} = 2, a_{n+1} = 7$    | 32. $a_{n-1} = 13.2, a_{n+1} = 15.8$               |
| 33. $a_{n-1} = 29, a_{n+1} = -11$ | 34. $a_{n-1} = \frac{2}{5}, a_{n+1} = \frac{4}{5}$ |
| 35. $a_{n-1} = 15, a_{n+1} = -17$ | 36. $a_{n-1} = -6, a_{n+1} = -7$                   |

37. 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.

- Write a recursive formula for the number of people the organization expects to serve each year.
- Write the first five terms of the sequence.
- Write an explicit formula for the number of people the organization expects to serve each year.
- How many people would the organization expect to serve in the 20th year?