EXERCISES

Give the first four terms of the arithmetic sequence having the given first term, *a*, and common difference, *d*.

1. $a = 2, d = 3$

2. $a = -3, d = 2$

3. $a = 1.5, d = -0.5$

4. $a = 10, d = 50$

5. $a = -1.1, d = -1.1$

6. $a = -2.6, d = 1.3$

Find the *n*th term of the arithmetic progression having the given values of *a*, *d*, and *n*.

7. $a = 1, d = 2, n = 11$

8. $a = -6, d = 3, n = 7$

9. $a = -12, d = \frac{3}{2}, n = 10$

10. $a = 10.5, d = -1.5, n = 20$

11. $a = 60, d = -2, n = 100$

12. $a = 1, d = 2, n = 1000$

Find the term asked for in each arithmetic sequence

13. The tenth term of $1, 4, 7, \ldots$

14. The twelfth term of $\frac{2}{3}, \frac{4}{3}, 2, \ldots$

15. The twentieth term of $-8, -5, -2, \ldots$

16. The eighth term of $p, p + q, p + 2q, \ldots$

17. The thirtieth term of $x - y, x, x + y, \ldots$

18. The fifteenth term of $x + y, 2x, 3x - y, \ldots$

19. Which term of the arithmetic sequence $3, 10, 17, \ldots$ is 143?

20. Which term of the arithmetic sequence $14, 9, 4, \ldots$ is -131?

Insert the given number of arithmetic means.

21. One, between 2 and 63.

22. One, between -7 and 5.

23. Five, between 2 and 20.

24. Five, between 1 and -1.

25. Seven, between 1 and 3.

26. Two, between 2 and 4.

27. A man takes a job at \$8000 a year. He receives annual increases in pay of \$500. What is his salary during his seventh year in the job?

28. A man's annual salary increased annually in arithmetic progression. The first year it was \$8800 and the fifth year it was \$12,000. What was his salary during each of the intervening years?

29. The seven weights for an analytic balance are in arithmetic progression and range from 1 gram to 25 grams. What are the other weights?

30. If a state's income tax is 1% on the first thousand dollars of net income, 3% on the second thousand, 5% on the third thousand, and so on in arithmetic progression, what is the tax on the last thousand dollars of a net income of \$12,000?

31. A man driving at 60 miles per hour (88 feet per second) applied his brakes and came to a complete stop in 22 seconds. If the speeds at which he was traveling at the end of each second decreased in arithmetic progression, how fast was he traveling at the end of the twelfth second after braking?

32. The third term of an arithmetic progression is 14; the ninth term is -1. Find the first three terms. (*Hint: $a + 2d = 14$, etc.*)

33. The fifth term of an arithmetic progression is 9; the fourteenth term is 45. Write the first three terms.