

Practice 1.2

Arithmetic Sequences

Find the next four terms of each arithmetic sequence.

1. 5, 8, 11, ... 14, 17, 20, 23

2. -4, -6, -8, ... -10, -12, -14, -16

3. 100, 93, 86, ... 79, 72, 65, 58

4. -24, -19, -14, ... -9, -4, 1, 6

5. $\frac{7}{2}, 6, \frac{17}{2}, 11, \dots$ $2\frac{7}{2}, 16, 3\frac{7}{2}, 21$

6. 4.8, 4.1, 3.4, ... 2.7, 2, 1.3, 0.6

Find the first five terms of each arithmetic sequence described.

7. $a_1 = 7, d = 7$

7, 14, 21, 28, 35

8. $a_1 = -8, d = 2$

-8, -6, -4, -2, 0

9. $a_1 = -12, d = -4$

-12, -16, -20, -24, -28

10. $a_1 = \frac{1}{2}, d = \frac{1}{2}$

$\frac{1}{2}, 1, \frac{3}{2}, 2, \frac{5}{2}$

11. $a_1 = -\frac{5}{6}, d = -\frac{1}{3}$

$-\frac{5}{6}, -\frac{7}{6}, -\frac{3}{2}, -\frac{11}{6}, -\frac{13}{6}$

12. $a_1 = 10.2, d = -5.8$

10.2, 4.4, -1.4, -7.2, -13

Find the indicated term of each arithmetic sequence.

13. $a_1 = 5, d = 3, n = 10$

$a_{10} = 5 + 3(10-1)$
32

14. $a_1 = 9, d = 3, n = 29$

$a_{29} = 9 + 3(29-1)$
93

15. a_{18} for -6, -7, -8, ...

$a_{18} = -6 - 1(18-1)$
-23

16. a_{37} for 124, 119, 114, ...

$a_{37} = 124 - 5(37-1)$
-56

17. $a_1 = \frac{9}{5}, d = -\frac{3}{5}, n = 10$

$a_{10} = \frac{9}{5} - \frac{3}{5}(10-1)$
 $-\frac{18}{5}$

18. $a_1 = 14.25, d = 0.15, n = 31$

$a_{31} = 14.25 + 15(0.15)$
18.75

Complete the statement for each arithmetic sequence.

19. 166 is the ? th term of 30, 34, 38, ...

$166 = 30 + 4(n-1)$
 $136 = 4n - 4$
 $140 = 4n$
 $35 = n$

20. 2 is the ? th term of $\frac{3}{5}, \frac{4}{5}, 1, \dots$

$2 = \frac{3}{5} + \frac{1}{5}(n-1)$
 $2 = \frac{2}{5} + \frac{1}{5}n$
 $1.6 = \frac{1}{5}n$
 $8 = n$

Write an equation for the nth term of each arithmetic sequence

21. -5, -3, -1, 1, ...

$a_n = -5 + 2(n-1)$
 $a_n = 2n - 7$

22. -8, -11, -14, -17, ...

$a_n = -8 - 3(n-1)$

23. 1, -1, -3, -5, ...

$a_n = 1 - 2(n-1)$
 $a_n = -2n + 3$

24. -5, 3, 11, 19, ...

$a_n = -3n - 5$

Find the arithmetic means in each sequence.

25. -5, ?, ?, ?, 11

$11 = -5 + d(5-1)$
 $16 = 4d$
 $4 = d$

26. 82, ?, ?, ?, 18

$18 = 82 + d(5-1)$
 $-64 = 4d$
 $d = -16$

27. EDUCATION Trevor Koba has opened an English Language School in Isehara, Japan. He began with 26 students. If he enrolls 3 new students each week, in how many weeks will he have 101 students?

$a_n = 26 + 3(n-1)$
 $101 = 26 + 3n - 3$
 $78 = 3n$
 $n = 26 \text{ weeks}$

28. SALARIES Yolanda interviewed for a job that promised her a starting salary of \$32,000 with a \$1250 raise at the end of each year. What will her salary be during her sixth year if she accepts the job?

$a_n = 32,000 + 1250(n-1)$