DIRECTIONS: Give the common difference and supply the missing terms for each **arithmetic sequence**.

1. 3, 7, 11, 15, 19, 23
D: 4

2. 21, 15, 9, 3, −3, −9
D: −6

3. 7, 10, 13, 16, 19, 22
D: 3

4. −25, 0, 25, 50, 75, 100
D: 25

DIRECTIONS: Give the common ratio and supply the missing terms for each **geometric sequence**.

5. 3, 6, 12, 24, ?, ?
R: 2

6. 1, -2, 4, -8, ?, ?
R: −2

7. $\frac{1}{100}, \frac{1}{10}$, ?, 10, 100, ?
R: 10

8. ?, ?, $\frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{81}$
R: $1/3$

DIRECTIONS: Write the first four terms of the sequence with the given formula. Also write if the sequence is **arithmetic**, **geometric**, or **neither**.

9. $a_n = 1 - 2n$

$-1, -3, -5, -7$; arithmetic

10. $a_n = \frac{1}{n+1}$

$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$; neither

11. $a_n = 3^n$

3, 9, 27, 81; geometric

12. $a_n = n^2 - 1$

0, 3, 8, 15; neither

DIRECTIONS: Give the next two terms of each sequence by using the pattern in the differences between terms.

13. 8, 9, 11, 14, 18, 23

14. 5, 7, 11, 17, 25, 35

DIRECTIONS: Write if the sequence is **arithmetic**, **geometric**, or **neither**. Then supply the missing terms of the sequence.

15. 20, 17, 14, 11, 8, 5
arithmetic

16. 5, 9, 13, 17, 21, 25
arithmetic

17. 1, 5, 25, 125, 625, 3125
geometric

18. 256, 64, 16, 4, 1, 1/4
geometric

19. 18, 22, 26, 30, 34, 38
arithmetic

20. 4, 0, −4, −8, −12, −16
arithmetic

DIRECTIONS: Write if the sequence is **arithmetic**, **geometric**, or **neither**. Then supply the missing terms of the sequence.

21. $1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}$, _1/25_, _1/36_
neither

22. 32, −16, 8, −4, _2_, _−1_
geometric

23. $4^{1}/_{2}, 4^{3}/_{2}, 4^{5}/_{2}, 4^{7}/_{2}$, _$4^{9}/_{2}$_, _$4^{11}/_{2}$_
geometric

24. $\frac{1}{12}, \frac{2}{13}, \frac{3}{14}, \frac{4}{15}$, _5/16_, _6/17_
neither

DIRECTIONS: Find the first four terms of the sequence with the given formula. Then write if the sequence is **arithmetic**, **geometric**, or **neither**.

25. $a_n = 4n + 3$
7, 11, 15, 19; arithmetic

26. $a_n = 2n + 1$
3, 5, 7, 9; arithmetic

27. $a_n = 3^{n+1}$
9, 27, 81, 243; geometric

28. $a_n = 2 \bullet 3^n$
6, 18, 54, 162; geometric

29. $a_n = \frac{(-2)^n}{8}$
$-\frac{1}{4}, \frac{1}{2}, -1, 2$; geometric

30. $a_n = 13 - 4n$
9, 5, 1, –3; arithmetic

31. $a_n = \log(n + 1)$
$\log 2, \log 3, \log 4, \log 5$; neither

32. $a_n = \log 10^n$
1, 2, 3, 4; arithmetic

DIRECTIONS: Find the next two terms of each sequence by using the pattern in the differences between terms.

34. 2, 4, 8, 14, 22, . . .
32, 44

35. −3, 1, 9, 21, 37, . . .
57, 79

36. 60, 48, 38, 30, 24, . . .
20, 18

37. 24, 23, 21, 17, 9, . . .
–7, –39

38. 1, 3, 7, 15, 31, . . .
63, 127

39. 0, 1, 4, 13, 40, . . .
121, 364

40. 1, 2, 6, 15, 31, . . .
56, 92

41. 1, 1, 2, 3, 5, 8, 13, . . .
21, 34

(#41 is called the Fibonacci Sequence – each term is the sum of the two terms before it. This is one of the most famous sequences in all of mathetmatics!)