

Chapter 11 Review

Write a recursive and an explicit formula for each sequence. Then find the next two terms and a_{12}

1) 7, 13, 19, 25, 31 . . .

2) 10, 20, 40, 80, 160, ...

3) After one month at a new job, you have saved \$50. You decided to save \$5 more each month.

a. Write an explicit formula to model the amount you save each month.

b. How much will you save in the sixth month?

c. How much will you have saved TOTAL by the end of the sixth month?

Determine whether each sequence is *arithmetic*, *geometric*, or *neither*.

Then find the next two terms and the 10th term.

4) 23, 27, 31, 35, 39, ...

5) -12, -5, 2, 9, 16, ...

6) -5, 15, -45, 135, -405, ...

Find the arithmetic mean a_n of the given terms.

7) $a_{n-1} = 4$, $a_{n+1} = 12$

8) $a_{n-1} = -11$, $a_{n+1} = 23$

Find the missing term of each arithmetic sequence.

9) ...74, ?, -15, ...

10) ...100, ?, 1000, ...

Determine whether each sequence is *arithmetic* or *geometric*. Then identify the common difference of common ratio.

11) 1620, 540, 180, 60, 20, ...

12) 78, 75, 72, 69, 66, 63, 60, ...

13) $\frac{3}{32}, \frac{3}{16}, \frac{3}{8}, \frac{3}{4}, \frac{3}{2}, 3, 6, \dots$

Find the first five terms.

14) $a_1 = 2, r = -2$

15) $a_1 = 3, d = 7$

16) $a_1 = -100, r = \frac{1}{5}$

17) $a_1 = 19, d = -4$

Find the missing term of each geometric sequence.

18) ...2, ?, 0.5, ...

19) 2, ?, 8

20) Write the formula for finding the sum of the INFINITE GEOMETRIC series. What does each variable stand for?

Find the sum.

21) $0.5 + 0.05 + 0.005 + \dots$

22) $1 - \frac{1}{2} + \frac{1}{4} - \dots$

23) $6 + 5 + \frac{25}{6} + \dots$

24) Write the formula for finding the sum of the FINITE ARITHMETIC series. What does each variable stand for?

25) Write the formula for finding the sum of the FINITE GEOMETRIC series. What does each variable stand for?

Determine whether each series is *arithmetic* or *geometric*. Then find the sum.

26) $2 + 7 + 12 + \dots; S_8$

27) $5000 + 1000 + 200 + \dots; S_{15}$

28) $1 + 0.01 - 0.98 - \dots; S_5$

Tell whether each list is a *sequence* or a *series*. Then tell whether it is *finite* or *infinite*. If it's a *series* then find the sum.

29) 12, 15, 18, ..., 33, 36

30) $12 + 15 + 18 + \dots$

31) $1 + 2 + 3 + \dots + 12$

Write the related series for the sequences below. Then evaluate the series.

32) 2, 4, 6, 8, ..., 22

33) 12, 24, 48, ...

Evaluate the series.

34) $\sum_{n=1}^5 (3n + 1)$

35) $\sum_{n=1}^8 \frac{2n}{3}$

Find the number of terms in the series and find the sum.

$$36) \sum_{n=4}^{10} (0.8n - 0.4)$$

$$37) \sum_{n=2}^6 (-2)^{n-1}$$

Use summation notation to write the series for the specified number of terms.

$$38) 17, 25, 33, 41, \dots; 20 \text{ terms}$$

$$39) 9, 18, 36, 72, \dots; 9 \text{ terms}$$

Decide whether the series is *arithmetic* or *geometric*, state whether it *converges* or *diverges* and decide whether it has a sum or no sum.

$$40) 20 + 10 + 5 + 2.5 + \dots$$

$$41) 10 + 20 + 40 + 80 + \dots$$

$$42) 22 + 10 - 2 - 14 - \dots$$

$$43) 32 + 42 + 52 + 62 + \dots$$