

HW# 50 - 9-4 - INTRODUCTION TO SEQUENCES AND SERIES

Name \_\_\_\_\_

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**Write out the first five terms of the sequence.**

- 1)  $a_n = n - 5$  1) \_\_\_\_\_  
 A) 4, 3, -2, -1, 0 B) 4, 3, 2, 1, 0  
 C) -4, -3, -2, -1, 0 D) -5, -4, -3, -2, -1

- 2)  $a_n = n^2 - n$  2) \_\_\_\_\_  
 A) 0, 3, 8, 15, 24 B) 1, 4, 9, 16, 25 C) 0, 2, 6, 12, 20 D) 2, 6, 12, 20, 30

- 3)  $a_n = \frac{1}{n^2}$  3) \_\_\_\_\_  
 A)  $\frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}, \frac{1}{36}$  B)  $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$   
 C)  $\frac{1}{4}, \frac{2}{9}, \frac{3}{16}, \frac{4}{25}, \frac{5}{36}$  D)  $1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}$

- 4)  $a_n = \frac{n^2 - 9}{n^2 + 9}$  4) \_\_\_\_\_  
 A)  $-\frac{4}{5}, 1, 0, 1, \frac{17}{8}$  B)  $1, -\frac{5}{13}, 1, \frac{7}{25}, 1$   
 C) 1, 1, 1, 1, 1 D)  $-\frac{4}{5}, -\frac{5}{13}, 0, \frac{7}{25}, \frac{8}{17}$

**Find the indicated term for the sequence.**

- 5)  $a_n = 4(4n - 3)$ ;  $a_9$  5) \_\_\_\_\_  
 A) 144 B) 171 C) 132 D) 96

- 6)  $a_n = 2^n$ ;  $a_3$  6) \_\_\_\_\_  
 A) 8 B) 4 C) 9 D) 6

7)  $a_n = (5n + 1)(3n - 6)$ ;  $a_8$

A) -123

B) 738

C) -18

D) 1230

7) \_\_\_\_\_

**Look for a pattern and then predict the general term, or nth term,  $a_n$ , of the sequence.**

8) 8, 16, 24, 32, 40, ...

A)  $a_n = 9n$

B)  $a_n = n^8$

C)  $a_n = n + 8$

D)  $a_n = 8n$

8) \_\_\_\_\_

9) 3, 9, 27, 81, 243, ...

A)  $a_n = 3 + 6(n - 1)$

B)  $a_n = 6n$

C)  $a_n = 3^{n-1} + 2$

D)  $a_n = 3^n$

9) \_\_\_\_\_

10)  $\frac{1}{1}, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}, \dots$

A)  $a_n = \frac{1}{n^2}$

B)  $a_n = \left(\frac{1}{2}\right)^{n-1}$

C)  $a_n = \frac{1}{n^{n-1}}$

D)  $a_n = \frac{1}{3n-2}$

10) \_\_\_\_\_

11)  $\frac{6}{7}, \frac{7}{8}, \frac{8}{9}, \frac{9}{10}, \frac{10}{11}, \dots$

A)  $a_n = \frac{5}{n+6}$

B)  $a_n = \frac{n+5}{n+6}$

C)  $a_n = \frac{n+6}{n+5}$

D)  $a_n = \frac{n+5}{n-6}$

11) \_\_\_\_\_

**Find the indicated partial sum for the sequence.**

12) 5, 4, 3, 2, ...;  $S_5$

A) 25

B) 0

C) 15

D) 5

12) \_\_\_\_\_

13) 2, 88, 174, 260, ...;  $S_{10}$

A) -3880

B) -3850

C) 3880

D) 3890

13) \_\_\_\_\_

**Evaluate the sum.**

14)  $\sum_{k=1}^4 (k^2 - 4)$  14) \_\_\_\_\_  
A) 30 B) 12 C) 14 D) 2

15)  $\sum_{k=2}^5 \frac{(k^2 - 4)}{2}$  15) \_\_\_\_\_  
A) 19 B) 11 C) 38 D) 21

**Rewrite the sum using sigma notation.**

16)  $9 + 27 + 81 + 243 + 729$  16) \_\_\_\_\_  
A)  $\sum_{k=2}^6 (3k)$  B)  $\sum_{k=1}^5 3k+1$  C)  $\sum_{k=1}^5 2k+1$  D)  $\sum_{k=2}^5 (3k)$

17)  $0 + 9 + 18 + 27 + 36$  17) \_\_\_\_\_  
A)  $\sum_{k=1}^5 3(3k + 3)$  B)  $\sum_{k=1}^5 3(3k - 3)$  C)  $\sum_{k=1}^4 0k + 9$  D)  $\sum_{k=1}^5 0k + 9$

**Provide an appropriate response.**

18) What name do we give a sequence with an unlimited number of terms? 18) \_\_\_\_\_  
A) Finite series B) Finite sequence  
C) Infinite series D) Infinite sequence

19) What is a series? 19) \_\_\_\_\_  
A) A series is the sum of the terms in a sequence.  
B) A series is the same as a sequence.  
C) A series is the product of the terms in a sequence.

## Answer Key

Testname: UNTITLED1

- 1) C
- 2) C
- 3) D
- 4) D
- 5) C
- 6) A
- 7) B
- 8) D
- 9) D
- 10) A
- 11) B
- 12) C
- 13) D
- 14) C
- 15) A
- 16) A
- 17) B
- 18) D
- 19) A