

I. Find the next four terms of each sequence and write the equation for the  $n$ th term.

1) 1000, 500, 250, 125, ... \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  $a_n =$  \_\_\_\_\_

2) 6, 18, 54 ... \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  $a_n =$  \_\_\_\_\_

II. Given the explicit formula for the sequence, find the first five terms and the named term in the problem.

1)  $a_n = 10\left(\frac{3}{4}\right)^{n-1}$  \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

$a_{23} =$  \_\_\_\_\_

2)  $a_n = 3^{n-1}$  \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

$a_{18} =$  \_\_\_\_\_

III. Given the first term and the common ratio of a *geometric* sequence find the first five terms and the explicit formula.

1)  $a_1 = 1, r = 2$  \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

$a_n =$  \_\_\_\_\_

IV. Given a term and the common ratio of a *geometric* sequence find the first five terms and the explicit formula.

1)  $a_5 = -\frac{16}{27}, r = \frac{2}{3}$  \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

$a_n =$  \_\_\_\_\_

V. Find the first five terms using the given recursive formula then write the general rule.

$$a_1 = -2$$

1)  $a_{k+1} = 5a_k$       \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

VI. Evaluate each series.

1)  $\sum_{n=1}^8 4(5)^{n-1}$

2)  $\sum_{n=1}^{\infty} 2(.5)^{n-1}$

VII. Rewrite each series using sigma notation.

1)  $8 + 16 + 32 + 64 + 128 + 256 + 512$

2)  $12 + 6 + 3 + 1.5 + .75$

VIII. Evaluate each geometric series.

1)  $\sum_{n=1}^{31} 2(1.2)^{n-1}$

2)  $-3 + -6 + -12 + -24 \dots$

3)  $a_1 = -4, a_n = -31104, r = 6$