Name: _____ Date: _____

Geometric Sequences and Series

Determine whether each sequence could be geometric. If so, find the formula.

1. 1.1, 3.3, 9.9, 29.7, 89.1, ...

2. 1, 2, 6, 24, 120, 720, ...

3. $-1, 4, -16, 64, ...$

4. 3125, 2500, 2000, 1600, 1280...

Find the rule and the 10th term of each geometric sequence.

5. 1600, 800, 400, 200,...

6. $2, -6, 18, -54,...$

Write the rule of the geometric sequence with the given terms.

7. $a_3 = 12, \quad a_6 = 96$

8. $a_{15} = 100, \quad a_{17} = 25$

9. $a_4 = 12, \quad a_6 = \dfrac{1}{3}$

10. $a_2 = 18, \quad a_5 = 3888$

Find the first 5 terms of the sequence

11. $a_n = -4(-2)^{n-1}$

12. $a_n = 20(0.6)^{n+2}$

Find the indicated sum for each geometric series <u>using the formula</u>

13. S_7 for 14, 42, 126, 378...

14. $\displaystyle\sum_{k=1}^{8}(-4)^{k-1}$

Find the series using your <u>calculator</u>

15. $2 + 8 + 32 + 128...\ n = 9$

16. S_5 for 4, 8, 16, 32...

17. $\displaystyle\sum_{n=3}^{9}(-4)^{n-1}$

18. $\displaystyle\sum_{m=5}^{10}-81\left(\frac{-1}{3}\right)^{m-2}$

19. Deanna received an e-mail asking her to forward it to 10 other people. Assume that no one breaks the chain and that there are no duplicate recipients. How many e-mails will have been sent after 8 generations, including Deanna's.