Secondary Math 3                                        Name_____

# 11.2 Geometric Sequences
                                              Date_____ Period_____

**Determine if the sequence is geometric.  If it is, find the common ratio.**

1) $-4, -2, -1, -\dfrac{1}{2}, \ldots$

2) $18, 10, 6, 4, \ldots$

3) $-1, -5, -25, -125, \ldots$

4) $3, -9, 27, -81, \ldots$

**Find the common ratio, the 8th term, and the three terms in the sequence after the last one given.**

5) $3, 6, 12, 24, \ldots$

6) $-4, -20, -100, -500, \ldots$

7) $2, \dfrac{2}{3}, \dfrac{2}{9}, \dfrac{2}{27}, \ldots$

8) $1, \dfrac{1}{6}, \dfrac{1}{36}, \dfrac{1}{216}, \ldots$

**Write the explicit and recursive formula for each geometric sequence.  Then find the term indicated.**

9) $-3, 9, -27, 81, \ldots$
   Find $a_{11}$

10) $1, -2, 4, -8, \ldots$
   Find $a_{11}$

11) $2, 6, 18, 54, \ldots$
   Find $a_{11}$

12) $1, 4, 16, 64, \ldots$
   Find $a_{10}$

**Find the missing term or terms in each geometric sequence.**

13) ..., 3, ___, 108, ...

14) ..., −1, ___, ___, ___, −81, ...

15) ..., −3, ___, ___, $-\dfrac{1}{9}$, ...

16) ..., 4, ___, ___, 32, ...

**Write an explicit and recursive formula for each sequence. Then generate the first five terms.**

17) a1=1, r=.5

18) a1=100, r= -20

19) a1=7, r=1

20) a1=10, r=-1

21) Explain the difference between a geometric sequence and an exponential function.

22) How is finding a missing term of a geometric sequence similar to finding the term of an arithmetic sequence? How is it different?

23) Suppose a balloon is filled with 5000 cm3 of helium. It then loses one fourth of its helium each day. How much helium will be left in the ballon at the start of the tenth day?

24) During your first week of training for a 100 mile bike event, you bike a total of 10 miles. You increase the distance you bike each week by twenty percent. How many miles do you bike during your twelfth week of training?