Name: _____ Date: _____

Geometric Sequences and Series

Determine whether each sequence could be geometric or arithmetic. If possible find the common ratio or common difference.

1.) $-10,-12,-14,-16,\ldots$	2.) $\frac{1}{2},1,2,3,\ldots$	3.) $-320,-80,-20,-5,\ldots$ 4.)
4.) $-36,-49,-64,-81,\ldots$	5.) $-2,-6,-18,-54,\ldots$	6.) $2,7,12,17,\ldots$

Find the 10th term of each geometric sequence.

7.) $2,6,18,54,162,\ldots$	8.) $5000,500,50,5,0.5,\ldots$	9.) $-0.125,0.25,-0.5,1,-2,\ldots$

Find the 9th term of each geometric sequence.

10.) $\frac{1}{2},\frac{1}{10},\frac{1}{50},\frac{1}{250},\frac{1}{1250},\ldots$	11.) $3,-6,12,-24,48,\ldots$
12.) $3200,1600,800,400,200,\ldots$	13.) $8,24,72,216,648,\ldots$

Find the 7th term of the geometric sequence with the given terms.

14.) $a_4=54, a_5=162$	15.) $a_5=13.5, a_6=20.25$	16.) $a_4=-4, a_6=-100$

Find the 6th term of the geometric sequence with the given terms.

17.) $a_4=-12, a_5=-4$	18.) $a_2=4, a_5=108$	19.) $a_3=3, a_5=12$

Find the geometric mean of each pair of numbers.

20.) 6 *and* $\frac{3}{8}$	21.) 2 *and* 32	22.) 12 *and* 192
23.) 9 *and* $\frac{1}{9}$	24.) 18 *and* 2	25.) $\frac{1}{5}$ *and* 45

Find the indicated sum for each geometric series.

26.) S_6 *for* $2+0.2+0.02+...$	27.) $\sum_{k=1}^{5}(-3)^{k-1}$
28.) S_5 *for* $12-24+48-96+...$	29.) $\sum_{k=1}^{9}256\left(\frac{1}{2}\right)^{k-1}$
30.) S_6 *for* $1+5+25+125+...$	31.) $\sum_{k=1}^{9}-1\left(\frac{1}{3}\right)^{k-1}$
32.) S_8 *for* $10+1+\frac{1}{10}+\frac{1}{100}+...$	33.) $\sum_{k=1}^{7}8(10)^{k-1}$

34.)**Salary** In his first year, a math teacher earned $32,000. Each successive year, he earned a 5% raise. How much did he earn in his 20th year? What were his total earnings over the 20-year period?