

Directions – Each problem below is geometric (finite or infinite). Complete and show your work!

1.) What is the explicit (n^{th} term) formula for the geometric sequence of 16 , 80 , 400 , ...?	2.) What is the fifth term of a geometric sequence whose first term is 32,768 and common ratio is one fourth?
3.) The seventh term of a geometric sequence is – 234,375 and the common ratio is – 5. What is the first term?	4.) What are four geometric means for sequence 3 , _____ , _____ , _____ , _____ , 3072?
5.) What is the sum of first four terms of a finite geometric series whose first term is 156 and the common ratio is – 2?	6.) What is the sum of the finite geometric series $2 + 12 + 72 + \dots + 93,312$?
7.) The sum of first 8 terms of a finite geometric series is – 16,400 whose common ratio is 3. What is the first term of the series?	8.) Determine if each infinite geometric series is convergent (if so, then find sum) or divergent: a.) $144 + 36 + 9 \dots$ b.) $-2 - 10 - 50 - \dots$ c.) $4 + 6 + 9 + \dots$ d.) $6 - 2 + \frac{2}{3} - \dots$
9.) What is the common ratio of an infinite geometric series whose first term is 14 and sum is 56?	10.) Find the sum (if it exists): a.) $\sum_{n=3}^6 3(-2)^{n-1}$ b.) $\sum_{n=1}^{\infty} -4\left(\frac{3}{5}\right)^{n-1}$ c.) $\sum_{n=5}^{12} 2\left(\frac{7}{2}\right)^{n-1}$ d.) $\sum_{n=1}^{\infty} 5\left(\frac{7}{4}\right)^{n-1}$