Name: _____

Geometric Sequence and Series

1) Sum the following geometric sequences.

   (1) 2 + 6 + 18 + . . . for the first 20 terms.
   (2) 1 − 2 + 4 − 8 + 16 . . . for (i) 10 terms, (ii) 11 terms.

2) Given a geometric sequence with the third term 20 and sixth term 160. Find the common ratio r, a_1 and S_8

3) A geometric sequence has positive terms. The sum of the first six terms is nine times the sum of the first three terms. The seventh term is 320. Find:

   1) the common ratio
   2) the first term
   3) the sum of first five terms

4) Find a term in the geometric sequence 3, 6, 12 . . . which exceeds 190. Find the smallest term in this sequence exceeding 190.

5) Find the following sums:

   1) $\displaystyle\sum_{i=1}^{\infty}\left(\frac{-3}{4}\right)\left(\frac{-1}{2}\right)^{i-1}$

   2) $\displaystyle\sum_{i=1}^{6} 2 \bullet 3^{i}$

   3) $\displaystyle\sum_{i=30}^{89}\left(-2i + 6\right)$