Pre-Calculus Name: _____
Sequences & Series Extra Review

To earn credit, you must have the correct answer <u>with all work shown.</u>

1. Write the following series using summation notation: 5 – 6 – 17 – 28 – 39 – 50 – 61 -72. 1._____

2. Write a rule for the *n*th term of the **arithmetic** sequence: $a_7 = 12$, $a_{37} = 222$ 2._____

3. Find a_{39} for the **arithmetic** sequence: 7, 11, 15, 19, …. 3._____

4. Find S_{39} for the **arithmetic** series 7 + 11 + 15 + 19 + …. 4._____

5. Find n if $S_n = 10{,}437$ for the **arithmetic** series 7 + 11 + 15 + 19 + …. 5._____

6. Find the sum of the following infinite series, if possible: $\sum_{n=1}^{\infty} 15\left(-\frac{12}{11}\right)^{n-1}$ 6._____

7. Find the sum of the following infinite series, if possible: $\sum_{n=1}^{\infty} \frac{2}{5}\left(\frac{2}{7}\right)^{n-1}$ 7._____

8. Find the sum of the first 12 terms of the **geometric** series: 2 – 8 + 32 – 128 + … 8._____

9. Use the series in #8 to find n when $S_n = -1638$. 9._____

10. Write a rule for the nth term of the **geometric** sequence: $a_4 = 500$, $a_8 = 312{,}500$? 10._____

11. In a **geometric** sequence, $a_4 = -24$ and $a_7 = -192$. Find a_{14}. 11._____

12. In the **arithmetic** sequence $a_6 = 16$ and $a_{12} = 46$. Find a_{150}. 12._____

13. What term number is 756 in the sequence 405,414,423…756? 13._____

14. Find the common ratio of the infinite geometric series with the given sum and first term: $S = \frac{7}{8}$, $a_1 = \frac{3}{10}$

14._____

$a_n = a_1 + (n-1)d$

$S_n = \frac{n}{2}(a_1 + a_n)$

$a_n = a_1(r)^{n-1}$

$S_n = a_1(\frac{1-r^n}{1-r})$

$S = \frac{a_1}{1-r}$