Pre-Calculus AB Name_____

Worksheet 39 - Series

Date_____ Period____

Evaluate each arithmetic series described.

1) $\sum_{m=1}^{45} (9.8 - 0.4m)$

2) $\sum_{n=1}^{15} 9n$

3) $a_1 = 31,\ d = 10,\ n = 8$

4) $a_1 = -22,\ a_n = -330,\ n = 45$

Evaluate each geometric series described.

5) $\sum_{i=1}^{10} 3^{i-1}$

6) $\sum_{n=1}^{7} -4 \cdot (-2)^{n-1}$

7) $a_1 = 1,\ a_8 = -279936,\ r = -6$

8) $-4 + 12 - 36 + 108...,\ n = 8$

Determine if each geometric series converges or diverges.

9) $\sum_{n=1}^{\infty} 4 \cdot (-2)^{n-1}$

10) $\sum_{m=1}^{\infty} \frac{625}{256} \cdot \left(\frac{4}{5}\right)^{m-1}$

11) $-4 - 2 - 1 - \frac{1}{2}...$

12) $-12500 - 2500 - 500 - 100...$

Evaluate each infinite geometric series described.

13) $a_1 = 3.7,\ r = 0.9$

14) $a_1 = 1,\ r = -\frac{1}{2}$

15) $\frac{243}{8} - \frac{81}{4} + \frac{27}{2} - 9...$

16) $-4 - 8 - 16 - 32...$

Determine the common ratio of the infinite geometric series.

17) $a_1 = 1,\ S = \frac{3}{2}$

18) $a_1 = 4,\ S = 8$