Pre-Calculus
Sec. 10.3 (day 2)
Geometric Sequences and Series

More Formulas to Memorize:

Formula for the Partial Sum of a Geometric Series:

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

Formula for the Infinite Sum of a Geometric Series:

$$S = \frac{a_1}{1-r}$$ where $|r| < 1$ for the series to converge to a specific value.

If $|r| \geq 1$ then the series diverges and there is NO infinite sum.

Ex1) Use summation notation to write the sum of

$7 + 14 + 28 + \ldots + 896$, then find the sum.

Ex2) Find the sum of the infinite geometric series:

$$\sum_{n=0}^{\infty} 6\left(\frac{2}{3}\right)^{n}$$

Ex3) Find the sum of the infinite geometric series:

$$\sum_{n=1}^{\infty} 8\left(\frac{5}{3}\right)^{n-1}$$

Ex4) $1.\overline{23}$

a) Rewrite the number as an infinite geometric series.

b) Find the rational number representation of the repeating decimal.

Ex5) $0.5\overline{4}$

a) Rewrite the number as an infinite geometric series.

b) Find the rational number representation of the repeating decimal.