LEARNING AS ONE NATION

Expanded Project

L E A R N I N G A C T I V I T Y

Math 10_13

Name: _____ **Grade/Score:** _____

Year and Section: _____ **Date:** _____

Subject *(Check or choose from below.)*_____

- ☐ Religion/Values Education
- ☐ Natural Sciences
- ☐ Araling Panlipunan
- ☐ Filipino
- ☐ English
- ☐ Math
- ☐ TLE / ICT
- ☐ MAPEH

Type of Activity *(Check or choose from below.)*_____

- ☐ Concept Notes
- ☐ Skills: Exercise / Drill
- ☐ Laboratory Report
- ☐ Illustration
- ☐ Formal Theme
- ☐ Informal Theme
- ☐ Others: _____

Activity Title: Sum of an Infinite Geometric Sequence

Learning Targets: To find the sum of a convergent infinite geometric sequence.

References: *(Author, Title, Pages)*
M.J. Acelajado, et al., Algebra, pp. 418-419
V. G. Baja, CVIF Learning Activities

We can get the sum of an infinite sequence if it is a convergent sequence. Thus, if the common ratio of terms $|r| < 1$, the sum of the infinite geometric sequence can be obtained by using the equation,

$$\boxed{S = \frac{a}{1-r}}$$

where a is the first term of the series and $r \neq 1$.

Exercises:

Determine whether the given sequence converges or not. Write **CS** if it is a convergent sequence and **DS** if it is a divergent sequence. Find the sum of the sequence if it is a convergent sequence.

_____a) $-27,\ 9,\ -3,\ 1, \ldots$

_____b) $4,\ 12,\ 36,\ 108, \ldots$

_____c) $81,\ -9,\ 1,\ -\frac{1}{9}, \ldots$

_____d) $4,\ -2,\ 1,\ -\frac{1}{2}, \ldots$