**Unit 1- Sequences and Series\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Lesson 1.4: Geometric Series**

Specific Outcome: 1. Analyze geometric sequences and series to solve problems.

**Introduction Activity**

You and your parent agree on a payment plan for you to do your household chores for the next 16 weeks. Your parents, thinking they are so smart, agreed to pay you one penny on the first week and keep doubling the payment each week for 4 months (16 weeks). By the end of the 16 weeks what is the total amount of money your parents have paid you to do your chores.

**Geometric Series**

 − is the **sum** of the terms of a geometric series.

 Formulas for finding the sum of a geometric series are:

 = sum of n terms

 = first term

 =common ratio

 =the last term

Use the **second formula** when you know the **last term** or if you have to find the **last term** ().

Example 1:

Which of the following series are geometric? Determine indicated sum for those that are.

1. 5 − 30 + 180 − 1080 **. . .** *S7*
2. 3 + 5 + 7 + 9 + **. . .** *S13*

Example 2:

Determine sums of the following geometric series.

 a. 5 + 15 + 45 + **. . .** + 10 935

 b. 

Example 3:

In a geometric series *Sn* = 605, r = 3 and *tn* = 405. Find *t1*.

Example 4:

2 + 10 + 50 + **. . .** = 39 062. How many terms are in this series?

Example 5:

In a geometric series, r = −2, *S7* = 258. Find *t1*.

**Assignment:** Pg. 53 questions 1, 2b,c, 3a,d, 4b,c, 7,10, 13