Arithmetic and Geometric Series

Arithmetic progression

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

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

Geometric progression

$$a_n = a_1(r)^d$$

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

$$\text{if } |r| < 1 \text{ then } S_\infty = \frac{a}{1-r}$$

Practice

1. Find the 20th term in the progression below.

$$2, 5, 8, 11, \ldots$$

2. Find the 9th term in the progression below.

$$2, 6, 18, 54 \ldots$$

3. Find the SUM of the first 10 terms of the progression below.

$$2, 5, 8, 11, \ldots$$

4. Find the SUM of the first 7 terms of the progression below.

$$2, 6, 18, 54 \ldots$$

5. Find the SUM of the infinite series below.

$$36, 12, 4, \frac{4}{3}, \frac{4}{9} \ldots$$