Geometric Series

The Formulae

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

$$S_n = \frac{t_{n+1} - t_1}{r - 1}$$

1. At a fish hatchery the number of fish that hatched on each of the first four days after fertilization was 2, 10, 50 and 250. How many fish will hatch in the first 10 days?

2. Calculate the sum of the geometric series

$$7{,}971{,}615 + 5{,}314{,}410 + 3{,}542{,}940 + \ldots + 92{,}160$$

3. The fourth term in a geometric sequence is 24, and the ninth term is 768. What is the sum of the first 20 terms in the sequence?