Geometric Sequences Practice

Find the common ratio and write the explicit formula for the *n*th term of each geometric sequence.

	Common ratio	Explicit formula
1. 1, 2, 4, 8, 16, …		
2. $10, -2, \frac{2}{5}, -\frac{2}{25}, \ldots$		
3. 5, 15, 45, 135, …		
4. 320, 80, 20, 5, …		

5. Find the first five terms of the geometric sequence defined as follows:

$g_n = -1(3)^{n-1}$

6. Find the first five terms of the geometric sequence defined as follows:

$g_n = g_{n-1} \cdot \frac{1}{4}$, $g_1 = 216$

7. You buy a new car for $25,000. The value of the car is worth $\frac{7}{8}th$ of the original each year

a. Find the first 5 terms of this sequence.

b. Write an explicit function for the average yearly value of the car in dollars if n is the current year.

8. A colony of ants starts with 5 members. The colony triples every year.

a. Write an explicit function to represent the sequence.

b. How many members will the colony have after 3 years?

c. How many years will it take for the colony to reach greater than 1,000 ants?

Geometric Sequences

Explicit Formula_____

---

1. Find the common ratio and the missing term in the sequence

7, 21, 63, _____, 567

---

2. In a geometric sequence, r = 5 and $g_2 = 15$.

a. Find the first term of the sequence.

b. Write an explicit formula for the sequence.

c. Find the 5th term of the sequence.

---

3. A geometric sequence is given by the terms: 125, 25, 5, 1, $\frac{1}{5}$

a. Write an explicit formula for the sequence.

---

4. In the following geometric sequence, 5, -20, 80, -320, …

a. Find the common ratio

b. Find the 7^{th} term.

---

5. A geometric sequence is given by the following formula: $a_n = a_{n-1} \cdot \frac{1}{3}$, $a_1 = 27$

a. Write the first five terms of the sequence.