

Algebra

Activity 2c - Geometric Sequences

In this activity, assume that all patterns are formed by multiplying the same number to get from one term to the next. This list of numbers is called a geometric progression or a geometric sequence. The pattern of growth is called *exponential growth*.

1. Find the missing term in the sequence $\{1, 2, 4, 8, _, 32, 64, 128, \dots\}$

2. Find the next term in the sequence $\{5, 50, 500, 5000, _, \dots\}$

What is the minimal amount of information you need to know in order to answer a question of this type?

3. Find the next term in the sequence $\{3, 12, _, \dots\}$

4. Find the first term in the sequence $\{_, _, 12, 18, _, \dots\}$

5. Fill in the blank: $\{1, _, 25, \dots\}$

6. Fill in the blank: $\{1, _, 9, \dots\}$

In general, if the first term of a geometric series is 1, what do you call the second term if you know the third term?

7. Fill in the blank: $\{1, _, 2, \dots\}$

8. Fill in the blanks: $\{_, _, 1, _, _, 2\sqrt{2}, _, \dots\}$

9. Fill in the blanks: $\{_, _, 1, _, _, 8, _, \dots\}$

10. Fill in the blanks: $\{1, _, _, _, _, x, _, \dots\}$

In general, if the first term of a geometric series is 1 and the n^{th} term is x , what is the second term?

11. You invest \$100 initially with interest compounded annually. After 10 years, your investment has grown to \$ 200. What was the annual interest rate?