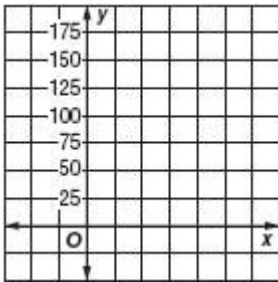# 11.1 - Sequences as Functions
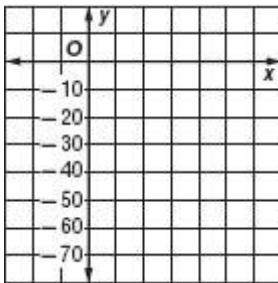
NAME _____   DATE _____

Find the next four terms of each arithmetic sequence. Then graph the sequence.

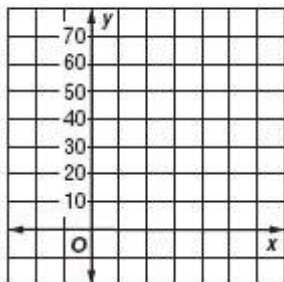1. 106, 111, 116, ...

2. -28, -31, -34, ...

Find the next three terms of each geometric sequence. Then graph the sequence.
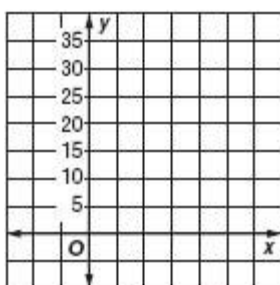
1.

$$\frac{1}{16}, \frac{1}{4}, 1, \ldots$$

2.

$$20, 4, \frac{4}{5}, \ldots$$

Determine whether each sequence is *arithmetic*, *geometric*, or *neither*. Explain your reasoning.

1. 57, 456, 3648, 29,184 , ...

2. -47, -37, -25, -13, ...

3. 4, 9, 16, 25, 36, ...

4. 824, 412, 206, 103, ...

Real word problems

1) **ALLOWANCES** Mark has saved $370 for a scooter and continues to save his weekly allowance of $10. Find the amount Mark will have saved after 7 weeks.

2) **HAIR GROWTH** In February, Yvonne's hair was 47.0 cm long. She continued to measure her hair each month to track its growth. In March, it was 50.1 cm; in April, 53.2 cm; in May, 56.3 cm; and in June, 59.4 cm. Use an arithmetic series to find the common difference and determine the rate of hair growth.

3) **BACTERIA** *Streptococcus pneumoniae* is one of the bacteria that can cause pneumonia. This bacteria can double its population in 20 minutes. If a sample started with 300 bacteria and doubled every 20 minutes, use the geometric series formula to calculate the number of bacteria in the sample after 80 minutes.

4) **SEATING** Kay is trying to find her seat in a theater. The seats are numbered sequentially going left to right. Each row has 30 seats.
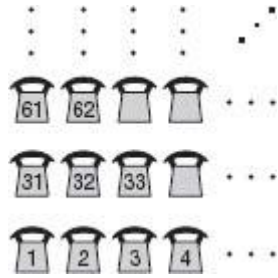
The figure shows some of the chairs in the left corner near the stage. Kay is at seat 129, but she needs to find seat 219. She notices that the seat numbers in a fixed column form an arithmetic sequence. What are the numbers of the next 4 seats in the same column as seat 129 going away from the stage? Where does Kay have to go to find her seat? In what row and column is her seat?

5) **EDUCATION** Trevor Koba has opened an English Language School in Isehara, Japan. He began with 26 students. If he enrolls 3 new students each week, in how many weeks will he have 101 students?

6) **SALARIES** Yolanda interviewed for a job that promised her a starting salary of $32,000 with a $1250 raise at the end of each year. What will her salary be during her sixth year if she accepts the job?