

**Arithmetic Sequence:**  $a_n = a_1 + (n - 1)d$

**Geometric Sequence:**  $a_n = a_1 \cdot r^{n-1}$

**For each sequence, state if it is arithmetic, geometric, or neither. If arithmetic, find the common difference (d). If geometric, find the common ratio (r).**

1. 2, 8, 32, 128, 512, ...

2. -7, -5, -2, 2, 7, ...

Arithmetic

Geometric

Neither

Arithmetic

Geometric

Neither

3. -39, -9, 21, 51, 81, ...

4. 375, -75, 15,  $-5, \frac{3}{5}, \dots$

Arithmetic

Geometric

Neither

Arithmetic

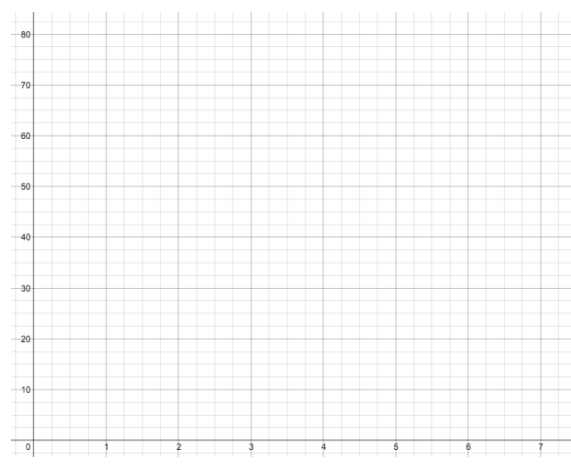
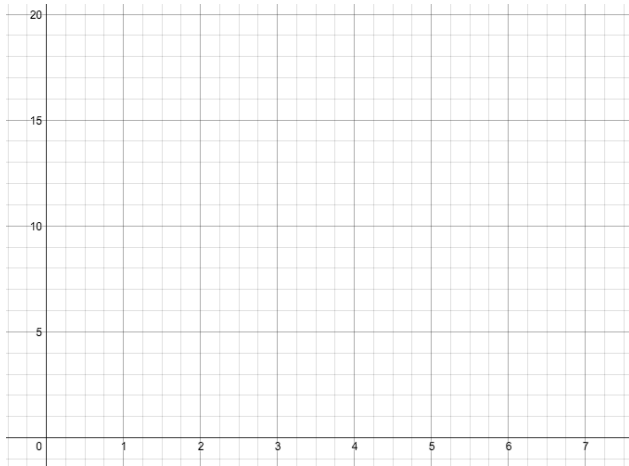
Geometric

Neither

**Write the next three terms in the sequence, then graph the sequence.**

5. 18, 14, 10, 6, ...

6.  $\frac{1}{9}, \frac{1}{3}, 1, 3, \dots$



**Find the common difference, the term named in the problem, and the explicit formula.**

7. 21, 25, 29, 33, ...; Find  $a_{33}$

8. 4, -3, -10, -17, ...; Find  $a_{38}$

$d =$  \_\_\_\_\_

$d =$  \_\_\_\_\_

$a_{33} =$  \_\_\_\_\_

$a_{38} =$  \_\_\_\_\_

$a_n =$  \_\_\_\_\_

$a_n =$  \_\_\_\_\_

**Find the common ratio, the term named in the problem, and the explicit formula.**

9.  $1, -2, 4, -8, \dots$ ; Find  $a_8$

10.  $2, 10, 50, 250, \dots$ ; Find  $a_8$

$$r = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

$$a_8 = \underline{\hspace{2cm}}$$

$$a_8 = \underline{\hspace{2cm}}$$

$$a_n = \underline{\hspace{3cm}}$$

$$a_n = \underline{\hspace{3cm}}$$

11. Dorrie increases the number of sit-ups she does each week by 8 after 10 sit-ups the first week.

Week	1	2	3	4
Sit-ups	10	18	26	34

a. Write a function that represents the arithmetic sequence.

b. Dorrie's goal is to do 74 sit-ups in one week. In which week will she meet her goal?

12. You start a chain e-mail and send it to six people. The next day, each of your friends forwards the e-mail to 6 people. The process continues for a few days.

a. Write a function that represents the number of people who have received the e-mail after  $n$  days.

b. After how many days will 1296 people have received the e-mail?