

**Algebra 1 CC**  
**Assignment #61**  
**Geometric Sequences**  
**\* Optional**

1. For each of the following geometric sequences, fill in the missing two terms and identify the common ratio,  $r$ .

Remember, you can always find  $r$  by dividing two consecutive terms such as  $\frac{a_2}{a_1}$ .

(a) 2, 10, 50, \_\_\_\_\_, \_\_\_\_\_

\*(b) 4, -8, 16, \_\_\_\_\_, \_\_\_\_\_

(c) 40, 20, 10, \_\_\_\_\_, \_\_\_\_\_

\*(d) 81, 54, 36, \_\_\_\_\_, \_\_\_\_\_

(e) 5, -5, 5, \_\_\_\_\_, \_\_\_\_\_

\*(f) 8, 20, 50, \_\_\_\_\_, \_\_\_\_\_

2. One of the following sequences is arithmetic and one is geometric. Explain which is which.

**Sequence #1:** 5, 15, 45, 135, 405

**Sequence #2:** 5, 15, 25, 35, 45

\*3. In a geometric sequence the first term is 5 and the second term is 20, which of the following is the fifth term?

(1) 65      (2) 1,280      (3) 80      (4) 5,120

4. A geometric sequence is defined recursively by  $a(1) = 40$  and  $a(n) = a(n-1) \cdot \frac{1}{2}$ .

(a) Write out the first four terms of this sequence.

(b) Is the 9<sup>th</sup> term of this sequence larger or smaller than  $\frac{1}{10}$ ? Show the calculation that you use to determine your answer.

---

R1. Which of the following represents the intersection of the lines whose equations are given below?

$$y + 2x = 14$$

$$y - x = 5$$

(1) (-1, 16)      (2) (4, 9)      (3) (3, 8)      (4) (0, 7)

R2. Write the equation of the line that passes through the points (3, 10) and (5, 18).

\*R3. The point (4, 20) lies on the line  $y = mx + 8$ , for some value of  $m$ .

(a) If  $m = 2$ , will the point (4, 20) lie on the line? How can you tell?

(b) Find the value of  $m$  for which the point (4, 20) will lie on the line.

\*R4. Find the sixth term of the arithmetic sequence of 5, 2.6, 0.2, -2.2.....

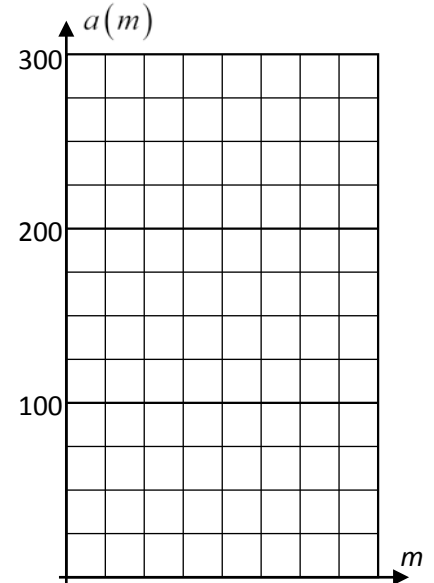
\*R5. Erin is traveling abroad this summer and would like to have a bit of spending cash while she's overseas. She has 100 dollars already saved and she plans on saving 40 dollars a month.

(a) Fill out the table below for the amount of money she saves as a function of how many months she has been saving.

$m$	1	2	3	4	5
$a(m)$	140				

(b) Give a **recursive definition** for the sequence  $a(m)$ . *Don't forget to give an initial value.*

(c) Graph this sequence for  $1 \leq m \leq 5$ .



1. (a) 250, 1250  $r = 5$   
 (b) -32, 64  $r = -2$   
 (c) 5, 2.5  $r = 1/2$   
 (d) 24, 16  $r = 2/3$   
 (e) -5, 5  $r = -1$   
 (f) 125, 312.5  $r = 2.5$

R5. (a)

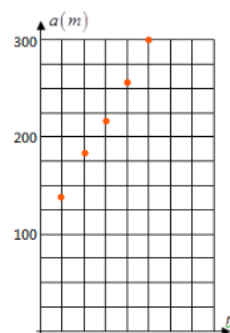
$m$	1	2	3	4	5
$a(m)$	140	<b>180</b>	<b>220</b>	<b>260</b>	<b>300</b>

2. **Sequence #1:** geometric, multiplication  
**Sequence #2:** arithmetic, addition

(b)  $a(1)=140$  and  $a(m) = a(m-1)+40$

3. (2)
4. (a) 40, 20, 10, 5  
 (b) larger,  $.15625 > .1$

(c)



R1. (3)

R2.  $Y = 4x - 2$

R3. (a) no,  $20 \neq 16$   
 (b)  $m = 3$

R4. -7