

Objective: Write Explicit rules for Arithmetic and Geometric sequences

For extra help: <http://www.cpm.org/pdfs/pguides/CCA/CCA%20PG%20Ch5.pdf>

Identify each sequence as either arithmetic or geometric. Then write the explicit rule you could use to find any term (n) of the sequence.

1. 7, 11, 15, 19...

2. 5, 25, 125, 625...

3. 12, 36, 108...

4. -4, 3, 10, 17...

5. 192, 48, 12, 3 ...

6. 15, 12, 9, 6...

For each sequence defined recursively, write the first few terms. Then use the terms to write an explicit equation.

7. $t(1) = 17$
 $t(n + 1) = t(n) - 3$

8. $t(1) = 20$
 $t(n + 1) = \frac{1}{2} \cdot n$

9. $a_1 = 4$
 $a_{n+1} = 2a_n$

10. $a_2 = 12$
 $a_{n+1} = a_n + 6$

Answers (A=Arithmetic, G=Geometric)

1. A: $t(n) = 4n + 3$

2. G: $t(n) = 1 \cdot 5^n$

3. G: $t(n) = 4 \cdot 3^n$

4. A: $t(n) = -11 + 7n$

5. G: $t(n) = 768 \cdot \left(\frac{1}{4}\right)^n$

6. A: $t(n) = 18 - 3n$

7. $t(n) = 20 - 3n$

8. $t(n) = 40 \cdot \left(\frac{1}{2}\right)^n$

9. $t(n) = 2 \cdot 2^n$

10. $t(n) = 6n$