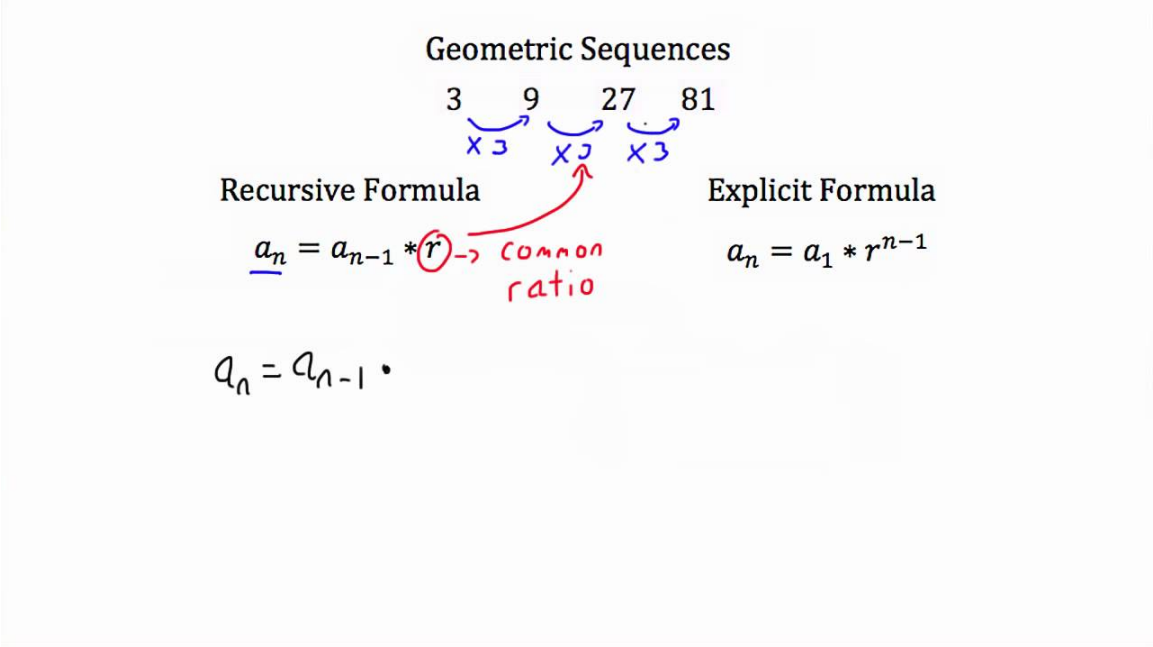
# Geometric Sequence Practice




1. Find the next 3 terms in the geometric sequences below.

   a) {2,6, …} b) {10, 5,…} c) {12, -6,…}

2. Find the 6th term in each of the following geometric sequences.

   a) {3, 6, 12, 24,…} b) {2, 10, 50, …} c) {512, 256, 128…}

3. Find the 9th term in each of the following geometric sequences.

   a) {1, 3, 9, 27,…} b) {12, 18, 27, …} c) $\{\frac{1}{16}, -\frac{1}{8}, \frac{1}{4}, -\frac{1}{2}\ldots\}$ d) {a, ar, $ar^2$,…}

4. Consider the sequence {5, 10, 20, 40,…}

   a) Show that the sequence is geometric. b) Find the equation for the general term.
   c) Find the value of the 15th term.

5. Consider the sequence {12, -6, 3, $-\frac{3}{2}$,…}

   a) Show that the sequence is geometric. b) Find the equation for the general term.
   c) Find the value of the 13th term (as a fraction).

6. Find k given that the following sequences are geometric.

   a) {7, k, 28…} b) {k, 3k, 20-k,…} c) {k, k+8, 9k…}

SOLUTIONS

1. a) 18, 54, 162 b) 2.5, 1.25, 0.625 c) 3, -1.5, 0.75

2. a) 96 b) 6250 c) 16

3. a) 6561 b) $\frac{19683}{64}$ c) 16 d) $ar^8$

4. a) r = 3 b) $u_n = 5(2)^{n-1}$ c) $u_{15} = 81\ 920$

5. a) $r = -\frac{1}{2}$ b) $u_n = 12(-\frac{1}{2})^{n-1}$ c) $u_{13} = \frac{3}{1024}$

6. a) $\pm 14$ b) 2 c) -2 or 4

7. a) $u_n = 3(2)^{n-1}$ b) $u_n = 10(\pm\sqrt{2})^{1-n}$