

**Recall the Sequence Equation Forms:**

Arithmetic (Linear):

Recursive:  $f(0) = \text{start}$       Explicit:  $f(x) = f(0) + d \cdot x$   
 $f(x+1) = f(x) + d$

Geometric (Exponential):

Recursive:  $f(0) = \text{start}$       Explicit:  $f(x) = f(0) \cdot r^x$   
 $f(x+1) = f(x) \cdot r$

**Given the explicit formula for each arithmetic sequence, write a sequence with 4 terms.**

1.  $f(x) = -5 + x(2)$

 $-5, -3, -1, 1$ 

2.  $f(x) = 10 + x(-6)$

 $10, 4, -2, -8$ **Given the explicit formula for each geometric sequence, write a sequence with 4 terms.**

3.  $f(x) = 80(1/4)^x$

 $80, 20, 5, \frac{5}{4}$ 

4.  $f(x) = -5(2)^x$

 $-5, -10, -20, -40$ **Given the recursive formula for each arithmetic sequence, write a sequence with 4 terms.**

5.  $f(0) = 4$   
 $f(x+1) = f(x) + 3$

 $4, 7, 10, 13$ 

6.  $f(0) = -8$   
 $f(x+1) = f(x) + 4$

 $-8, -4, 0, 4$

Given the recursive formula for each geometric sequence, write a sequence with 4 terms.

7.  $f(0) = -64$   
 $f(x+1) = f(x) \cdot (1/2)$

$-64, -32, -16, -8$

8.  $f(0) = 2$   
 $f(x+1) = f(x) \cdot (-6)$

$2, -12, 72, -432$

Given the following formulas,

a) determine whether it is *arithmetic* or *geometric* and if it *recursive* or *explicit*.

b) the first four terms in the sequence.

9.  $f(x) = -1 + x(-3)$  *-Arith*

$-1, -4, -7, -10$

10.  $f(0) = 2$   
 $f(x+1) = f(x) + 5$  *Arith.*

$2, 7, 12, 17$

11.  $f(0) = \frac{2}{3}$   
 $f(x+1) = f(x) \cdot (\frac{1}{3})$  *Geo*

$\frac{2}{3}, \frac{2}{9}, \frac{2}{27}, \frac{2}{81}$

12.  $f(0) = -14$   
 $f(x+1) = f(x) + 4$  *Arith*

$-14, -10, -6, -2$

13.  $f(x) = -32(0.5)^x$  *Geo*

$-32, -16, -8, -4$

14.  $f(x) = 2 + x(-2)$  *Arith*

$2, 0, -2, -4$

15.  $f(0) = 16$   
 $f(x+1) = f(x) \cdot (1/2) - 3$  *Geo*

16.  $f(x) = 125(1/5)^x$  *Geo*

$125, 25, 5, \frac{1}{5}$

Given the explicit formula for each arithmetic sequence, write a sequence with 4 terms.

1.  $f(x) = -3 + x(5)$

2.  $f(x) = -10 + x(5)$

Given the explicit formula for each geometric sequence, write a sequence with 4 terms.

3.  $f(x) = 243(1/3)^x$

4.  $f(x) = -8(1.5)^x$

Given the recursive formula for each arithmetic sequence, write a sequence with 4 terms.

5.  $f(0) = -2$   
 $f(x+1) = f(x) + 3$

6.  $f(0) = -9$   
 $f(x+1) = f(x) - 1.5$

Given the recursive formula for each geometric sequence, write a sequence with 4 terms.

7.  $f(0) = -32$   
 $f(x+1) = f(x) \cdot (1/4)$

8.  $f(0) = 5$   
 $f(x+1) = f(x) \cdot (-3)$

Given the following formulas,

a) determine whether it is *arithmetic* or *geometric* and if it *recursive* or *explicit*.

b) the first four terms in the sequence.

9.  $f(x) = 5 + x(5)$

10.  $f(0) = -2$   
 $f(x+1) = f(x) + \frac{1}{2}$

11.  $f(0) = \frac{3}{2}$   
 $f(x+1) = f(x) \cdot \left(-\frac{1}{3}\right)$

12.  $f(0) = -2$   
 $f(x+1) = f(x) + 6$

13.  $f(x) = 100(2)^x$

14.  $f(x) = -3 + x(3)$

15.  $f(0) = 3$   
 $f(x+1) = f(x) \cdot (2)$

16.  $f(x) = \frac{1}{8} (1/2)^x$

Given the following sequence,

a) determine if it is arithmetic or geometric

b) write the recursive and explicit formulas

17. 7, 17, 27, 37, ...

18. 4, 16, 64, 253, ...

19. -3, 6, -12, 24, ...

20. 23, 21, 19, 17, ...