

**Notes: T4-65 Sequences Equation Forms****Recall the Sequence Equation Forms:**

Arithmetic (Linear):

Recursive:

Explicit:

Geometric (Exponential):

Recursive:

Explicit:

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

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

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

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

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

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

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

5. 
$$\begin{aligned} f(0) &= 4 \\ f(x+1) &= f(x) + 3 \end{aligned}$$

6. 
$$\begin{aligned} f(0) &= -8 \\ f(x+1) &= f(x) + 4 \end{aligned}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

$$12. \begin{aligned} f(0) &= -2 \\ f(x+1) &= f(x) + 6 \end{aligned}$$

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

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

$$15. \begin{aligned} f(0) &= 3 \\ f(x+1) &= f(x) \cdot (2) \end{aligned}$$

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

Given the following sequence,

- a) determine if it is arithmetic or geometric
- b) write the recursive and explicit formulas

$$17. 7, 17, 27, 37, \dots$$

$$18. 4, 16, 64, 253, \dots$$

$$19. -3, 6, -12, 24, \dots$$

$$20. 23, 21, 19, 17, \dots$$