

Practice Assignment

Block: \_\_\_\_\_

For the following questions, determine if the sequence is arithmetic or geometric. Then write BOTH an explicit and recursive rule. You must also show the simplified version of the explicit rule (arithmetic only).

1. -10, -4, 2, 8, 14, ...

Type: Arithmetic

Recursive Rule:  $a_1 = 10$

$$a_n = a_{n-1} + d$$

Explicit Rule:  $a_n = -10 + 6(n-1)$

Simplified Explicit Rule:  $a_n = 6n - 16$

$$a_n = \underline{-10} + 6n - \underline{6}$$

2. 1, -2, 4, -8, ...

Type: Geometric

Recursive Rule:  $a_1 = 1$

$$a_n = -2 \cdot a_{n-1}$$

Explicit Rule:  $a_n = 1 \cdot (-2)^{n-1}$

Simplified Explicit Rule: N/A

3. 36, 31, 26, 21, ...

Type: Arithmetic

Recursive Rule:  $a_1 = 36$

$$a_n = a_{n-1} - 5$$

Explicit Rule:  $a_n = 36 - 5(n-1)$

Simplified Explicit Rule:  $a_n = -5n + 41$

$$a_n = \underline{36} - 5n + \underline{5}$$

4. 36, 18, 9, 4.5, ...

Type: Geometric

Recursive Rule:  $a_1 = 36$

$$a_n = \frac{1}{2} \cdot a_{n-1}$$

Explicit Rule:  $a_n = 36 \cdot \frac{1}{2}^{n-1}$

Simplified Explicit Rule: N/A

5. 4, 12, 36, 108, ...

Type: Geometric

Recursive Rule:  $a_1 = 4$

$$a_n = 3 \cdot a_{n-1}$$

Explicit Rule:  $a_n = 4 \cdot 3^{n-1}$

Simplified Explicit Rule: N/A

6. 34, 24, 14, 4, ...

Type: Arithmetic

Recursive Rule:  $a_1 = 34$

$$a_n = a_{n-1} - 10$$

Explicit Rule:  $a_n = 34 - 10(n-1)$

Simplified Explicit Rule:  $a_n = -10n + 44$

$$a_n = \underline{34} - 10n + \underline{10}$$

For each of the following formulas, generate the first five terms:

7.  
 $a_1 = 13$   
 $a_n = a_{n-1} + 12$

13, 25, 37, 49, 61, ...

8.  
 $a_1 = -4$   
 $a_n = a_{n-1} \cdot -3$

-4, 12, -36, 108, -324, ...

9.  
 $a_1 = -4$   
 $a_n = a_{n-1} + 12$

-4, 8, 20, 32, 44, ...

13.  
 $a_1 = -3$   
 $a_n = a_{n-1} \cdot 4$

-3, -12, -48, -144, -576, ...

14.  
 $a_1 = 45$   
 $a_n = a_{n-1} - 10$

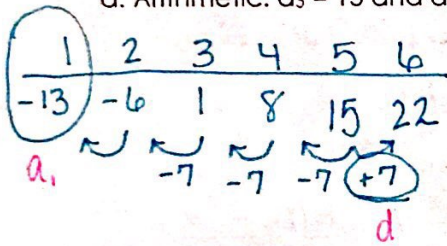
45, 35, 25, 15, 5, ...

15.  
 $a_1 = 1024$   
 $a_n = a_{n-1} \cdot \frac{1}{2}$

1024, 512, 256, 128, 64, ...

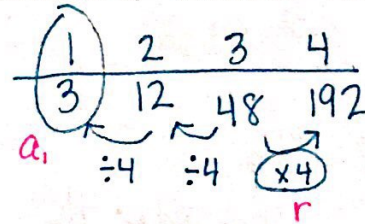
16. For the given information, use it to create an explicit rule.

a. Arithmetic:  $a_5 = 15$  and  $a_6 = 22$



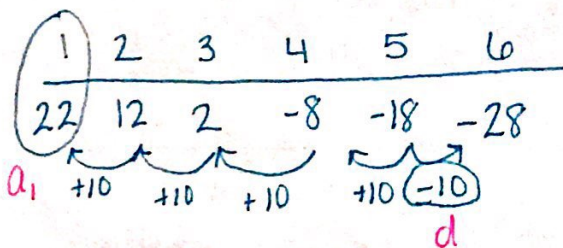
$$a_n = -13 + 7(n-1)$$

b. Geometric:  $a_3 = 48$  and  $a_4 = 192$



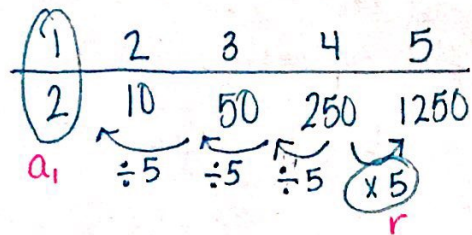
$$a_n = 3 \cdot 4^{n-1}$$

c. Arithmetic:  $a_5 = -18$  and  $a_6 = -28$



$$a_n = 22 - 10(n-1)$$

d. Geometric:  $a_4 = 250$  and  $a_5 = 1250$



$$a_n = 2 \cdot 5^{n-1}$$