

Practice Assignment

For the following sequences, identify the type, create the explicit formula. Then find the stated nth term.

1. -10, -4, 2, 8, 14, ...
+6 +6

Arithmetic
 $d=6$

Formula:

$$a_n = -10 + 6(n-1)$$

$$a_n = -10 + 6n - 6$$

$$a_n = 6n - 16$$

Find a_{26} =

$$a_{26} = 6(26) - 16$$

$$a_{26} = 140$$

2. 4, 5, 6.25, ...
 $\times 1.25$

$$\frac{5}{4} = 1.25$$

$$\frac{6.25}{5} = 1.25$$

Geometric
 $r=1.25$

Formula:

$$a_n = 4(1.25)^{n-1}$$

Find a_9

$$a_9 = 4(1.25)^{9-1}$$

$$a_9 \approx 23.84$$

3. 3, 6, 12, ...
 $\times 2 \times 2$

Geometric
 $r=2$

Formula:

$$a_n = 3(2)^{n-1}$$

Find a_{10}

$$a_{10} = 3(2)^{10-1}$$

$$a_{10} = 1536$$

4. 12, 8, 4, 0, ...
 $-4 -4$

Arithmetic
 $d=-4$

Formula:

$$a_n = 12 - 4(n-1)$$

$$a_n = 12 - 4n + 4$$

$$a_n = -4n + 16$$

Find a_{31} =

$$a_{31} = -4(31) + 16$$

$$a_{31} = -108$$

5. 6, 11, 16, ...
 $+5 +5$

Arithmetic
 $d=5$

Formula

$$a_n = 6 + 5(n-1)$$

$$a_n = 6 + 5n - 5$$

$$a_n = 5n + 1$$

Find a_{42} =

$$a_{42} = 5(42) + 1$$

$$a_{42} = 211$$

6. 5, -25, 125, ...
 $\times 5 \times -5$

Geometric
 $r=-5$

Formula:

$$a_n = 5(-5)^{n-1}$$

Find a_8 =

$$a_8 = 5(-5)^{8-1}$$

$$a_8 = -390,625$$

7. 36, 31, 26, 21, ...
 $-5 -5$

Arithmetic
 $d=-5$

Formula:

$$a_n = 36 - 5(n-1)$$

$$a_n = 36 - 5n + 5$$

$$a_n = -5n + 41$$

Find a_{17} =

$$a_{17} = -5(17) + 41$$

$$a_{17} = -44$$

For the given information, generate the first five terms:

8. $a_n = 3(2)^{n-1}$

a_1 \times by 2

3, 6, 12, 24, 48, ...

9. $a_n = 5n + 1$

Sub $n=1$ to start
 $+5$

6, 11, 16, 21, 26

10. $a_n = 5(-2)^{n-1}$

a_1 \times by -2

5, -10, 20, -40, 80, ...

11. $a_n = -7n - 8$

Sub $n=1$ to start
 -7

-15, -22, -29, -36, -42, ...

12. $a_n = 12(1/4)^{n-1}$

a_1 \div by 4

12, 3, .75, .1875, .047, ...

13. $a_n = 6n$

Sub $n=1$ to start
 $+6$

6, 12, 18, 24, 30, ...

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

14. Geometric: $a_4 = 16, r = 2$

1	2	3	4	5
2	4	8	16	32

$a_n = 2(2)^{n-1}$

15. Geometric: $a_5 = -64, r = 4$

1	2	3	4	5	6
-1/4	-1	-4	-16	-64	-256

$a_n = -\frac{1}{4}(4)^{n-1}$
 $a_n = 0.25(4)^{n-1}$

16. Arithmetic: $a_8 = 36, d = 2$

1	2	3	4	5	6	7	8	9
22	24	26	28	30	32	34	36	38

$a_n = 22 + 2(n-1)$
 $a_n = 22 + 2n - 2$
 $a_n = 2n + 20$

17. Count the number of lines creating each figure and answer the questions below:

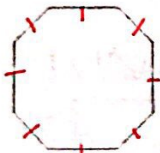


Fig 1

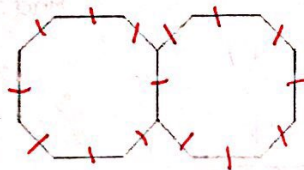


Fig 2

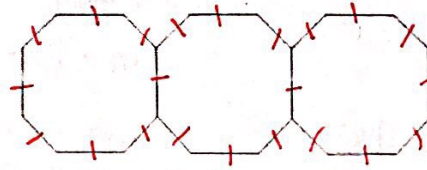


Fig 3

Complete the table below:

Fig #	1	2	3	4	5
# of lines	8	15	22	29	36

a. Write the **EXPLICIT** rule for the number of lines needed to generate each shape.

$a_n = 8 + 7(n-1)$
 $a_n = 8 + 7n - 7$
 $a_n = 7n + 1$

b. How many lines would be used to create figure #20?

$a_{20} = 7(20) + 1$
 $a_{20} = 141 \text{ lines}$