

Name: _____ Date: _____ Period: _____

Arithmetic and Geometric Sequences Practice

Directions: For each of the following tables:

- a) Describe how to find the next term in the sequence.
- b) Find the next term in the table.
- c) Write a recursive rule for the function.
- d) Write an explicit rule for the function.
- e) Tell whether the function is linear, exponential, or neither.

1)

x	y
1	10
2	20
3	40
4	?
...	...
n	?

- a) To find the next term, multiply by 2
- b) Next term in table: 80
- c) Recursive Rule: $a_1 = 10 ; a_n = 2a_{n-1}$
- d) Explicit Rule: $a_n = 10(2)^{n-1}$
- e) Type of function: ~~geome~~ exponential

2)

x	y
1	40
2	200
3	1000
4	?
...	...
n	?

- a) To find the next term, multiply by 5
- b) Next term in table: 5000
- c) Recursive Rule: $a_1 = 40 ; a_n = 5a_{n-1}$
- d) Explicit Rule: $a_n = 40(5)^{n-1}$
- e) Type of function: exponential

3)

x	y
1	9
2	10
3	11
4	?
...	...
n	?

- a) To find the next term, add 1
- b) Next term in table: 12
- c) Recursive Rule: $a_1 = 9 ; a_n = a_{n-1} + 1$
- d) Explicit Rule: $a_n = 9 + 1(n-1)$ $a_n = 1n + 8$
- e) Type of function: linear

4)

x	y
1	16
2	64
3	256
4	?
...	...
n	?

- a) To find the next term, multiply by 4
- b) Next term in table: 1024
- c) Recursive Rule: $a_1 = 16$ $a_n = 4a_{n-1}$
- d) Explicit Rule: $a_n = 16(4)^{n-1}$
- e) Type of function: exponential

5)

x	y
1	-2
2	-5
3	-8
4	?
...	...
n	?

- a) To find the next term, subtract 3
- b) Next term in table: -11
- c) Recursive Rule: $a_n = a_{n-1} - 3$; $a_1 = -2$
- d) Explicit Rule: $a_n = -2 - 3(n-1)$ $a_n = -3n + 1$
- e) Type of function: linear

6)

x	y
1	32
2	64
3	128
4	?
...	...
n	?

- a) To find the next term, multiply by 2
- b) Next term in table: 256
- c) Recursive Rule: $a_1 = 32$; $a_n = 2a_{n-1}$
- d) Explicit Rule: $a_n = 32(2)^{n-1}$
- e) Type of function: exponential

7)

x	y
1	3,125
2	625
3	125
4	?
...	...
n	?

- a) To find the next term, multiply by $\frac{2}{5}$
- b) Next term in table: 25
- c) Recursive Rule: $a_1 = 3125$ $a_n = \frac{2}{5}a_{n-1}$
- d) Explicit Rule: $a_n = 3125\left(\frac{2}{5}\right)^{n-1}$
- e) Type of function: exponential