# Unit 1 Day 5 HW: Arithmetic Sequences

Write the recursive formula that goes with the following sequences:

1) 1, 2, 3, 4, 5…

2) 2, 4, 8, 16, 32…

3) 8, 1, $\frac{1}{8}$, $\frac{1}{64}$…

4) 5, 2, -1, -4…

Find the first four terms of the given recursively defined sequence.

5) $a_n = 2(a_{n-1} - 2)$ *and* $a_1 = 3$

6) $a_n = \frac{a_{n-1}}{2}$ *and* $a_1 = -8$

7) $a_n = 2a_{n-1} + 1$ *and* $a_1 = 1$

8) $a_n = a_{n-1} - 5$ *and* $a_1 = 1$

9) $a_n = 3a_{n-1}$ *and* $a_1 = 1$

10) $a_n = -2(a_{n-1} + 3)$ *and* $a_1 = 1$

Write an explicit and recursive formula for the following sequences.

11) 19, 13, 7, 1…

Explicit: _____

Recursive: _____

12) 9, 17, 25, 33…

Explicit: _____

Recursive: _____

13) -3, -1, 1, 3…

Explicit: _____

Recursive: _____

14) 110, 88, 66, 44…

Explicit: _____

Recursive: _____

Find the finite sum $S_n = \frac{n}{2}(a_1 + a_n)$ of the arithmetic sequence that satisfies the given conditions. Show all work!

15) $a_1 = 1, d = 2, n = 10$

16) $a_1 = 3, d = 2, n = 12$

17) $a_1 = 4, d = 2, n = 20$

18) $a_1 = 100, d = -5, n = 8$

19) $a_1 = 55, d = 12, n = 10$

20) $a_1 = 8, d = 3, n = 15$