

Name: _____

Guide

Date: _____

Write the explicit rule AND the recursive rule for each arithmetic sequence. Show your checked work for both: $a_1 = 8$ $d = 3$

1. 8, 11, 14, 17, ...

$$a_n = a_1 + d(n-1) \quad a_1 = 3(1) + 5 \quad a_n = a_{n-1} + d; a_1 = -$$

$$a_n = 8 + 3(n-1) \quad a_1 = 3 + 5 \quad \boxed{a_n = a_{n-1} + 3; a_1 = 8}$$

$$a_n = 8 + 3n - 3 \quad a_1 = 8 \checkmark$$

$$\boxed{a_n = 3n + 5}$$

2. 25, 16, 7, -2, ...

3. -9, -4, 1, 6, ... $a_1 = -9$ $d = 5$

$$a_n = a_1 + d(n-1) \quad a_1 = 5(1) - 14 \quad a_n = a_{n-1} + d; a_1 = -$$

$$a_n = -9 + 5(n-1) \quad a_1 = 5 - 14 \quad \boxed{a_n = a_{n-1} + 5; a_1 = -9}$$

$$a_n = -9 + 5n - 5 \quad a_1 = -9 \checkmark$$

$$\boxed{a_n = 5n - 14}$$

4. 8, 5.5, 3, 0.5, ...

Find the n th term for each arithmetic sequence:

5. $a_1 = 13$, $d = -2$, $n = 8$

$$a_n = a_1 + d(n-1)$$

$$a_8 = 13 - 2(8-1)$$

$$a_8 = 13 - 2(7)$$

$$a_8 = 13 - 14$$

$$\boxed{a_8 = -1}$$

6. $a_1 = 7$, $d = 3/2$, $n = 17$

Convert between explicit and recursive:

7. $a_n = -2n + 11$

$$d = -2$$

$$a_n = a_{n-1} + d; a_1 = -$$

$$a_1 = -2(1) + 11$$

$$\boxed{a_n = a_{n-1} - 2; a_1 = 9}$$

$$a_1 = -2 + 11$$

$$a_1 = 9$$

8. $a_n = a_{n-1} + 7$; $a_1 = -3$

9. $a_n = a_{n-1} - 5$; $a_1 = 0$

$$d = -5 \quad a_n = a_1 + d(n-1)$$

$$a_1 = 0 \quad a_n = 0 - 5(n-1)$$

$$a_n = 0 - 5n + 5$$

$$\boxed{a_n = -5n + 5}$$

Check:

$$a_1 = -5(1) + 5$$

$$a_1 = -5 + 5$$

$$a_1 = 0 \checkmark$$

10. $a_n = n - 16$