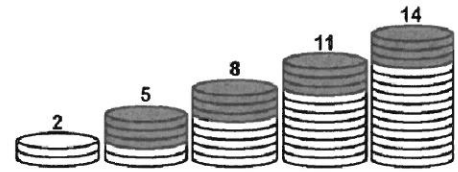


Name: _____ Per: _____ Date: _____
 Serafino • Algebra 2E

8A Arithmetic Sequences
 Classwork/ HW Packet



I get bored and start stacking quarters, as so →
 How many quarters will be in the 97th stack? .

An arithmetic sequence is a: _____

Let: **n** = position of the term **a_n** = term in the nth position **d** = common difference

Explicit Formulas: $a_n = a_1 + d(n-1)$ or $a_n = a_k + d(n-k)$

Less popular: $a_n = dn + z$
 Finds a term, given a common difference and the "zeroth" term

Finds a term, given the first term and the common difference

Recursive Formula: $a_n = a_{n-1} + d$ (must provide a_1)

Find a term in the sequence, based on the previous term (stupid)

Provide Recursive and Explicit Formulas based on the first few terms of a sequence. Then find the 50th term.

1. 19, 25, 31, 37 ...

n	1	2	3	4	50
a _n					

Recursive: _____

Explicit: _____

2. 5, -3, -11, -19 ...

n					50
a _n					

Recursive: _____

Explicit: _____

3. 8, 9.5, 11, 12.5 ...

n					50
a_n					

Recursive: _____

Explicit: _____

Given one formula, give the first 4 terms and 50th term in the sequence, and the other formula.

4. Recursive Formula: $a_n = a_{n-1} + 3 ; a_1 = 13$

n	1	2	3	4	50
a_n					

Explicit: _____

5. Recursive Formula: $a_n = a_{n-1} - 5 ; a_1 = -4$

n					50
a_n					

Explicit: _____

6. Explicit Formula: $a_n = -6 + 4(n - 1)$

n					50
a_n					

Recursive: _____
 $a_1 =$ _____

7. Explicit Formula: $a_n = 2.5 + 0.5(n - 1)$

n					50
a_n					

Recursive: _____
 $a_1 =$ _____

Now, I will only give you one term in the sequence and the common difference. Then fill in the rest.

8. $a_1 = 10$ $d = 5$

n					50
a_n					

Recursive: _____

$a_1 =$ _____

Explicit: _____

9. $a_2 = 7$ $d = 3$

n					50
a_n					

Recursive: _____

$a_1 =$ _____

Explicit: _____

10. $a_4 = 7$ $d = -1$

n					50
a_n					

Recursive: _____

$a_1 =$ _____

Explicit: _____

I also can only give you two terms in the arithmetic sequence. You will have to find the common difference, and then fill out the rest.

11. $a_3 = 15$ $a_4 = 19$ $d =$ _____

n					50
a_n					

Recursive: _____

$a_1 =$ _____

Explicit: _____

12. $a_3 = 8$ $a_5 = 14$ $d =$ _____

n					50
a_n					

Recursive: _____

 $a_1 =$ _____

Explicit: _____

13. $a_8 = 25$ $a_{20} = 61$

n	1	2	3	4	50
a_n					

Recursive: _____

 $a_1 =$ _____

Explicit: _____

14. $a_{14} = 50$ $a_{22} = 34$

n	1	2	3	4	50
a_n					

Recursive: _____

 $a_1 =$ _____

Explicit: _____

Finding if a number is a member of a sequence....

15. $-15, 5, 25, 45, 65, \dots$

Is 75 a member? _____

Is 285 a member? _____

17. $87, 83, 79, 75, \dots$

Is 35 a member? _____

Is -279 a member? _____

16. $6, 17, 28, 39, 50, \dots$

Is 325 a member? _____

Is 761 a member? _____

18. $2, 15, 28, 41, \dots$

Is 145 a member? _____

Is 528 a member? _____

Let's put it all together!

1. Circle the letters that are arithmetic sequences. Give the explicit formula and identify the 100th term.

a. 2, 4, 8, 12 ...

b. 19.5, 19.9, 20.3, 20.7 ...

c. 3, 9, 27, 81 ...

d. 21, 20, 19, 18 ...

e. $\frac{4}{3}$, $\frac{7}{3}$, $\frac{10}{3}$, $\frac{13}{3}$...

d. 5, 9, 14, 19 ...

2. In each of the arithmetic sequences, fill in the missing term(s).

a. 8, _____, 32, ...

b. -14, _____, 2, ...

c. 2, _____, _____, 14, ...

d. 3, _____, _____, 21, ...

e. 65, _____, _____, _____, 21, ...

3. Provide Recursive and Explicit Formulas and the requested term: 4, 11, 18, 25, ...

Recursive: _____

Explicit: _____

a_{20} : _____

4. The 5th term of a sequence is 34 and the common difference is -3.

First 5 terms: _____

Recursive: _____

Explicit: _____

a_{20} : _____

5. The 9th term is -20 and the 14th term is 45.

First 5 terms: _____

Recursive: _____

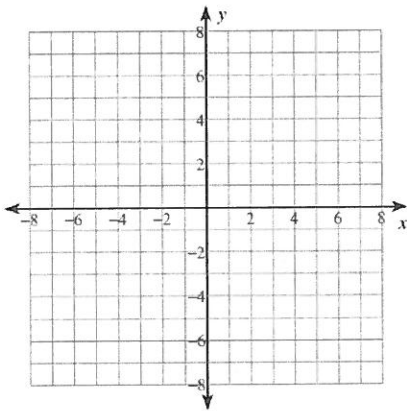
Explicit: _____

a_{20} : _____

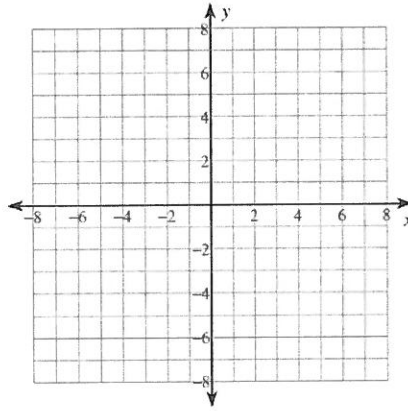
6. Is 233 a member of the sequence?: 0, 3, 6, 9, 12... ? If yes, say which term. If no, explain why.

7. Graphing sequences is insanely easy. Just... uh.... plot the points. Done.

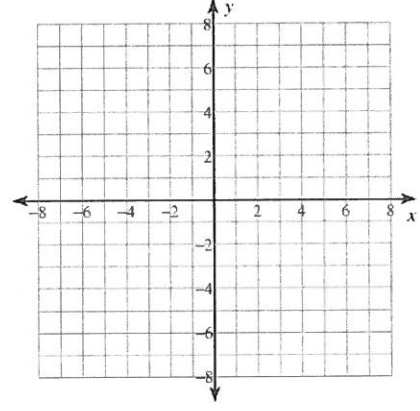
a. 9, 6, 3, 0, ...



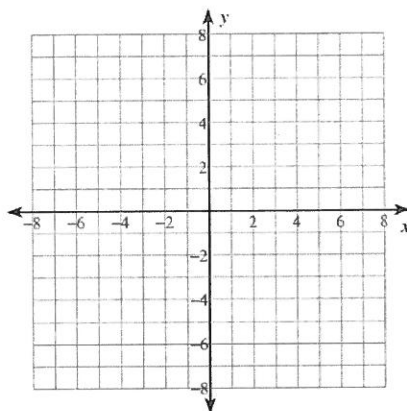
b. -6, -2, 2, ...



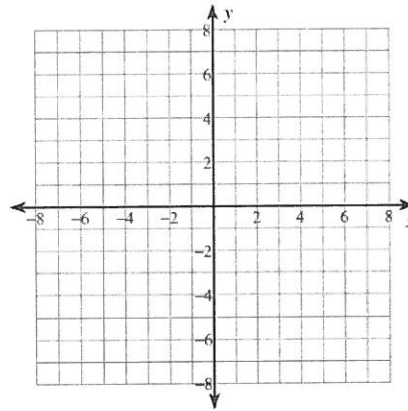
c. $a_n = -n + 8$



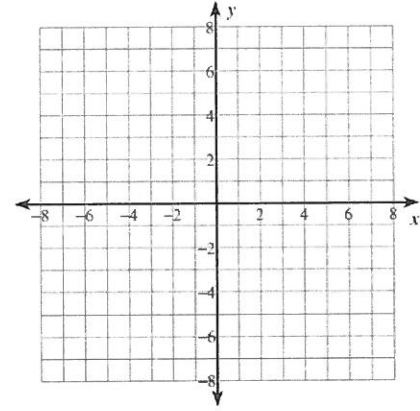
d. $a_n = \frac{1}{2}n - 3$



e. $a_n = \frac{1}{2}n - 3$



f. $a_n = -n + 8$



g. Look at your graphs above. Which are the only quadrant(s) you used?

Why are those the only ones you need to graph sequences?