Algebra II **Sequences Review** **Name:**_____

Write the first five terms of the sequence.

1. $a_n = n^2 - 3$

2. $a_n = \frac{1}{3}a_{n-1} + 9$
   $a_0 = 243$

3. $f(n) = \frac{n}{3n+2}$

_____ _____ _____

4. $a_n = a_{n-1} - a_{n-2}$
   $a_1 = 3 \;\; a_2 = 1$

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

6. $a_n = a_{n-1} + 7$
   $a_0 = 3$

_____ _____ _____

For each sequence, write an *explicit* rule for the *n*th term. Tell whether the sequence is arithmetic, geometric, or neither.

7. $2, 4, 8, 16, 32, \ldots$

8. $\frac{4}{2}, \frac{8}{3}, \frac{12}{4}, \frac{16}{5}, \frac{20}{6} \ldots$

9. $3, 5, 7, 9, 11, \ldots$

_____ _____ _____

For each sequence, write a *recursive* rule for the *n*th term. Tell whether the sequence is arithmetic, geometric, or neither.

10. $10, 4, -2, -8, -14, \ldots$

11. $-3, 15, -75, 375, \ldots$

12. $1, 3, 4, 7, 11, 18, \ldots$

_____ _____ _____

Write an explicit rule for each sequence below with the given conditions. Then find a_{10}.

13. $d = 5,\ a_5 = 33$

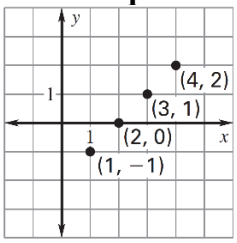
14. $a_3 = 24,\ a_5 = 96$ *(Assume Geometric)*

15. $a_2 = 12,\ a_6 = 4$ *(Assume Arithmetic)*

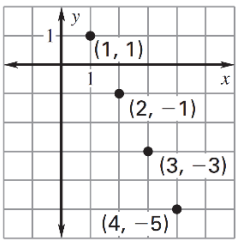
16. $r = -3,\ a_3 = 54$

Write a rule for the sequence whose graph is shown.

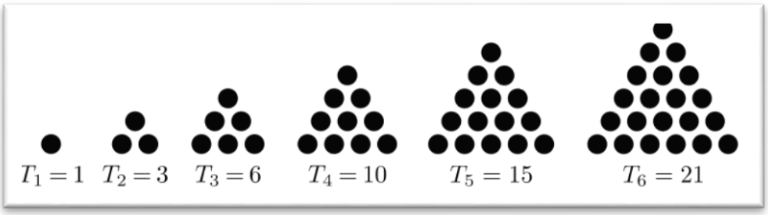
17.



18.



A triangular number is a number that belongs to the sequence that represents the number of objects that stack to form an equilateral triangle (as illustrated below).



19. Write either an explicit or recursive rule for the triangular numbers.

20. Find T_{20}.