ALGEBRA I // MODULE 1

SEQUENCES – 1.9

1.9

READY

Given the following information, determine the explicit equation for each sequence.

1. $f(1) = 8$, common ratio $r = 2$

2. $f(1) = 4, f(n) = 3f(n-1)$

3. $f(n) = 4f(n-1); f(1) = \frac{5}{3}$

4. Which sequence from #1-3 has the greatest value at $f(100)$? How do you know?

5. $f(1) = 8$, common difference $d = 2$

6. $f(1) = 4, f(n) = 3 + f(n-1)$

7. $f(n) = -4 + f(n-1); f(1) = \frac{5}{3}$

8. Which sequence from #5-7 has the greatest value at $f(100)$? How do you know?

9. Compare the sequence you chose in #4 to the sequence you chose in #8. Which of those two sequences will have the greatest value at $f(100)$? How do you know?

10. Describe a situation in which a geometric sequence would not outgrow an arithmetic sequence.

SET

Write a recursive and explicit equation to represent each situation.

11. Geraldine is decreasing the amount of work she does by 15% per week. She currently completes 80 hours of work in a week.

12. Gerald invests $7,000 in an account that earns 7% interest per year.

13. Ginny invests $35,000 in an account that earns .95% interest per month.

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14. Gordon is draining a pool at a rate of 80% per hour. The pool started with 5,000 gallons of water.

Write a recursive function for each explicit function.

15. $f(x) = 4x - 25$

17. $h(x) = \left(\frac{1}{4}\right)^x \cdot 25$

16. $g(x) = 4^x \cdot 25$

18. $p(x) = -4x + 25$

GO

Determine the recursive and explicit equations for each.

19. 5, 9, 13, 17, …   This sequence is: Arithmetic , Geometric , Neither

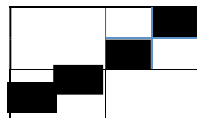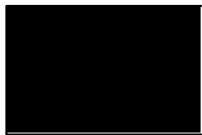Recursive Equation: _____   Explicit Equation: _____

20. 60, 30, 0, -30, …   This sequence is: Arithmetic , Geometric , Neither

Recursive Equation: _____   Explicit Equation: _____

21. 60, 30, 15, $\frac{15}{2}$, …   This sequence is: Arithmetic , Geometric , Neither

Recursive Equation: _____   Explicit Equation: _____

22.

(The number of black tiles above)   This sequence is: Arithmetic , Geometric , Neither

Recursive Equation: _____   Explicit Equation: _____