Algebra 2

Unit 9 Test Review

1. Given the sequence 7, 11, 15, 19, …which of the following will represent a formula for the *n*th term ?
2. A recursive sequence is defined by with and . Which of the following represents the value of ?

1) 8

2) -7

3) 3

4) 4

1. Which of the following represents the sum of a geometric series with 8 terms whose first term is 3 and whose common ratio is 4?
2. 32, 756
3. 42, 560
4. 28, 765
5. 65, 535
6. Determine the recursive definition for the sequence 5, 10, 20, 40, …
7. Write both the explicit and recursive formulas that represent the sequence 8, 6, 4, 2, …
8. ***Show all of your work*** to find the values of each summation below…

1. Use sigma notation to represent the sum of the finite sequence: 1, 5, 9, 13, 17
2. A college savings account is constructed so that $1000 is placed in the account on January 1 of each year with a guaranteed 3% yearly return in interest, applied at the end of each year to the balance of the account.
   1. Write a formula to represent this situation.
   2. Using your formula from part a., determine how much money is in the account after the 19th year.

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| 1. Solve the following system algebraically for *all* values of *x* and *y*: | 1. What is the recursive definition for the geometric sequence defined by ? |

1. You are excited about buying your very first brand new car for $23,500 but are disappointed to learn that the car depreciates (loses value) at a rate of about 17% each year.
   1. Write the recursive formula that models the value of the car after *n* years.
   2. Determine the value of the car after 5 years.
   3. After how many years will the cars value drop below $10,000?
2. Will the 65th term of the arithmetic sequence 7, 15, 23, 31, …be less than the 7th term of the geometric sequence ? Justify or explain your answer.