

Algebra II

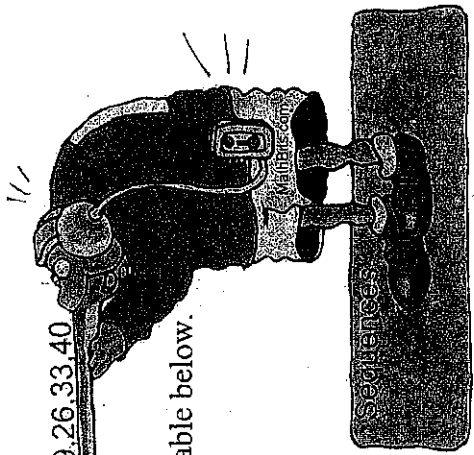
New Car

Name _____

Hour _____

Sam just bought a brand new \$30,000 car. After one year the car is worth \$24,000, and after 2 years it is worth \$19,200. It continues to depreciate 20% each year. Note that \$30,000 is your 0 year value.

- 1) Make up a table that represents this situation for the first five years.
- 2) How much will the car be worth after 5 years?
- 3) Write a model to predict the value of the car if its value continues this pattern.
- 4) Using your model, predict how much the car will be worth after 10 years.
- 5) Let's say that the car dealership has 10 of this same type of car. One is 1 year old, one is 2 years old, one is 3 years old, and so on. What would be the total value of these 10 cars?



Challenge Me!

Name _____

Sequences Directions: Solve problems #1-10 (show your work) and shoot that answer OUT of the table below.

1. Find the sum: $\sum_{j=1}^4 2j - 1$	2. Find the thirty-fifth term of the arithmetic sequence 75, 71, 67, ...	3. Find the eighth term of the geometric sequence 9, 27, 81, ...
4. Find the sum of the first 17 terms of the arithmetic sequence 27, 18, 9, ...	5. Find: $\sum_{a=1}^4 (-1)^{a-1} a(2a+1)$	6. Find the fourth term of the sequence $a_1 = \frac{1}{3}$; $a_{n+1} = a_n + 1$.
7. Find the twenty-fifth term of the arithmetic sequence $2a-3b, 0, -2a+3b, \dots$	8. Find the fourth terms of a geometric sequence where $a_1 = 7$ and $a_7 = 28672$.	9. Four positive numbers form a geometric sequence. The sum of the four numbers is one more than the common ratio. If the first number is $1/10$, find the common ratio.
		10. Find the fifteenth term of the sequence seen in the cartoon above.

Directions: After crossing out your answers to questions #1-10, each row will contain the first terms of a sequence. Put the terms in ascending order, examine the sequence, and answer the question at the right pertaining to that sequence.

115	2875	575	-765	19683	23	11. Find the 6 th term of this sequence.
12	16	63	46	10/3	29	12. Find the 30 th term of this sequence.
± 2	± 3	0	0	± 4	± 6	13. Using sigma notation, express this sequence.
$35a+58b$	-61	$47a+76b$	$-46a+69b$	$11a+22b$	$23a+40b$	14. Find the common difference of this sequence.
110	164	668	448	80	332	15. Write a recursive formula to create this sequence.