Name: _____ Per: _____ Date: _____

Serafino ▪ Algebra 2E

# 8T Sequences & Series Graded Classwork Test – Partners Okay

☐ I worked alone ☐ I worked with _____

**Directions: Answer all the questions correctly ☺ Put all work in case I feel generous and give partial credit. Read each option carefully before committing – make sure you are answering the question asked and that it makes sense. Circle your answers on this test AND fill in the bubble on your multiple choice answer form.**

1. Classify the sequence as arithmetic, geometric or neither: 5, –10, 15, –20, …

   A. arithmetic B. geometric C. neither

2. Classify the sequence as arithmetic, geometric or neither: $a_n = 3^n$

   A. arithmetic B. geometric C. neither

3. Classify the sequence as arithmetic, geometric or neither: $a_n = n^2 + 1$

   A. arithmetic B. geometric C. neither

4. What is $a_{50}$ in the sequence 5, –2, –9, –16 … ?

   A. – 338 C. – 337

   B. –345 D. –331

5. Which of the formulas correctly expresses this sequence: –2.7, –3.3, –3.9, –4.5, …

   A. $a_n = -.06n - 2.7$ C. $a_n = -.6n - 2.1$

   B. $a_n = -.6n - 2.7$ D. $a_n = .06n - 2.1$

6. What is the common difference of an arithmetic sequence in which $a_7 = 14$ and $a_{17} = -66$

   A. 8 C. – 8

   B. 6.5 D. –6.5

7. Write out the first 3 terms of the sequence: $a_n = n(n+1)^2$

A. 1, 2, 12

B. 4, 9, 16

C. 1, 8, 27

D. 4, 18, 48

8. In –22, –16, –10, –4, which term number has a value of 140?

A. $28^{th}$

B. $27^{th}$

C. $29^{th}$

D. None; it is not a member

9. In a geometric sequence, $a_2 = -52731$ and $a_5 = -1953$. What are the possibilities for $a_7$? Circle all that are correct.

A. 35805

B. –35805

C. 217

D. –217

E. None of the above

10. What is the sum of: 8, –16, 32, – 64, ...

A. –112

B. –40

C. 45.3

D. 2.6

E. No sum possible

11. What does this expression mean? $\sum_{k=1}^{4} (3)^{k-1}$

A. 3, 9, 27, 81

B. 1, 3, 9, 27

C. 3 + 9 + 29 + 81

D. 1 + 3 + 9 + 27

12. Evaluate: $\sum_{k=1}^{10} -3(-2)^{k-1}$

A. 3,075

B. 7665

C. 1,023

D. No sum possible

13. In a geometric sequence, $a_3 = 30$ and $a_7 = 7680$. How many possible values are there for r and $a_1$?

A. r: 2; $a_1$: 2

B. r: 2; $a_1$: 1

C. r: 1; $a_1$: 2

D. r: 1; $a_1$: 1

14. I get cast in a major motion picture and need to gain weight for the role. Every day, I set a goal to eat three times as many cookies as I did the day before. By the 14th day, I've eaten a grand total of 2,391,484 cookies. How many cookies must I have eaten on the second day?

A. 1 cookie

B. 3 cookies

C. About 0.5 cookies

D. About 1.5 cookies

E. About 4.5 cookies

15. What is the common ratio? 3, 2, 4/3, 8/9 ....

A. 3/2

B. 2/3

C. 1/3

D. None; the sequences is not geometric

16. What is the sum of the following: $10 + 7 + 4 + 1 + \ldots + -137$

A. No sum possible

B. 50

C. – 6350

D. –3175

17. A sub sandwich shop charges by the foot. It charges \$10 for the first foot, \$11.50 for the second, \$13 for the third, etc. So, for example, a 3–foot sub would cost \$34.50. How much would the company charge for an 80–foot sandwich?

A. \$5,540

B. \$128

C. \$2,770

D. \$7600

18. Evaluate: $\sum_{k=4}^{7} k^2 + 5$

A. 150

B. 146

C. 112.5

D. Potatoes.

19. Find the sum of the first 40 terms of 17, 24, 31, 38 ...

A. 297

B. 290

C. 6280

D. 6140

E. No sum possible

20. Find the sum of the first 11 terms of 7, 14, 28, 56, ...

A. 14,329

B. 14,309

C. 14,366

D. 14,331

E. No sum possible

21. You put $50 in a bank. Each month, you put in 25% less than you did the month before. Over time, what is the maximum amount of money that will ever be in that bank account?

A. $66.67

B. $40

C. $666.67

D. $200

E. Infinite amount!

22. In the expression: $\sum_{k=2}^{7} k^3$ , how many terms are you being asked to add?

A. 5

B. 6

C. 783

D. Infinite