You're Talkin' About PRACTICE?!

- 1. An example of a finite sequence is
 - a) $3, 8, 13, 18, \dots, 5n 2, \dots n \in \mathbb{N}$.
 - **b)** 3, 8, 13, 18, ... $5n 2, ... 498, n \in \mathbb{N}$.
 - c) 3+8+13+18+...
 - d) 3+8+13+18
- 2. If 32, 24, 18, ... are the first three terms of a geometric sequence, then the value of the fifteenth term of the sequence, to the nearest hundredth, is:



Record your answer in the numerical response box from left to right.

- 3. The common difference of the arithmetic sequence defined by $t_n = \frac{1}{3}(7-2n), n \in \mathbb{N}$, is
 - a) $\frac{7}{3}$ b) $-\frac{7}{3}$ c) $\frac{2}{3}$ d) $-\frac{2}{3}$
- 4. If the 15^{th} and 16^{th} terms of an arithmetic sequence are 99 and 92 respectively, the 5^{th} term is
 - **a)** 29
 - **b)** 36
 - **c)** 162
 - **d)** 169

5. Consider the following geometric series.

Series 1: 3+6+12+24+...
Series 2: 24+12+6+3+...
Series 3: 3-3+3-3...
Which of these series is / are convergent?
a) 1 only
b) 2 only
c) 1 and 2 only

- d) 2 and 3 only
- 6. The sum of the terms of a sequence is represented by $S_n = 6n + n^2, n \ge 1, n \in \mathbb{N}$. The general term of the sequence is
 - **a)** $t_n = 2n + 5$
 - **b**) $t_n = 9n 2$
 - c) $t_n = 7(\frac{9}{7})^{n-1}$
 - **d)** $t_n = 7(\frac{16}{7})^{n-1}$
- 7. A bush is 2 feet high when planted. It grows 2.5 feet during the first year. Each subsequent year, the bush grows $\frac{3}{4}$ of the previous year's growth. The maximum height of the bush is
 - a) 10 feet
 - **b)** 12 feet
 - c) 18 feet
 - d) unable to be determined from the given information
- 8. A pile driver pounds a steel column into the ground. On the first drive, the column is pounded 1.65 metres into the ground, and on each successive drive, it moves 80% as far as it did on the previous drive. The least number of drives required to drive the column a total of 8.2 metres into the ground is:

Record your answer in the numerical response box from left to right.

9. In a certain geometric sequence, the second term is 6 000, and the fifth term is 10 368. The common ratio, as a decimal to the nearest tenth, is:



Record your answer in the numerical response box from left to right.

- 10. If the sum of an infinite series is 72 and the common ratio is $\frac{7}{8}$, then the first term is
 - a) 576
 - **b**) 63
 - **c)** 9
 - d) $\frac{1}{576}$
- 11. A golf ball is dropped on to a concrete sidewalk from a height of 2 metres. Each time it bounces, it rebounds to $\frac{2}{3}$ of its previous height. On the sixth rebound, it will rise
 - **a)** $2(\frac{2}{3})^6$ m
 - **b)** $2(\frac{2}{3})^5$ m
 - c) $2(\frac{1}{3})^6$ m
 - **d)** $2(\frac{1}{3})^5$ m
- 12. The side lengths of a triangle form an arithmetic sequence. The shortest side has a length of 10.5 cm and the perimeter of the triangle is 45 cm. The length, in cm, of the longest side is:

		r
1	1	

 $Record\ your\ answer\ in\ the\ numerical\ response\ box\ from\ left\ to\ right.$

- 13. Consider the sequence 2, 4, 7, 11, 16, Which of the following is correct?
 - a) The sequence is arithmetic.
 - **b**) The sequence is geometric.
 - c) The sequence is both arithmetic and geometric.
 - d) The sequence is neither arithmetic nor geometric.

- 14. The first term of a geometric series is 81, and the third term is 1.
 - a) Explain why these two terms could describe two possible geometric series. (hint: what do you need to know about a series to describe it completely?)

b) Determine the sum to infinity of each of the possible series.