

STATION A

1. Determine the third term of the sequence given

$$t_n = \frac{2n^3 - 3}{n^2}$$

2. Find the third term of the sequence for $n \in \mathbb{N}$ and $n > 1$,
 $t_1 = -2$, $t_n = 5(t_{n-1}) - 4$

3. Find the next two terms of each sequence:
a) -3, 9, -27, ... b) 8, -1, -10

STATION B

1. Find the simplified general term if :
 - a) the first term is -21 and the common ratio is 8
 - b) the first term is 12 and common difference is -3

2. A term of each sequence is represented by a variable. If the sequence is
 - a) Geometric, what is the value of m : 16, m , 4...
 - b) Arithmetic, what is the value of m : 16, m , 4, ...

3. Determine a recursion formula for 23,-46, 92,...

STATION C

1. Use patterns in the terms of the expansion to determine the following of $(x-y)^{17}$.
 - a) The number of terms in the expansion
 - b) The value of k in the term $-6188x^k y^5$
 - c) The coefficient of the term $kx^3 y^{14}$
2. Describe how Pascal's Triangle and expanding binomials are related.
3. What row number of Pascal's triangle has a row sum of 8192?

STATION D

1. Calculate the sum of the first 24 terms for the following series: $-6, \frac{-7}{2}, -1, \dots$

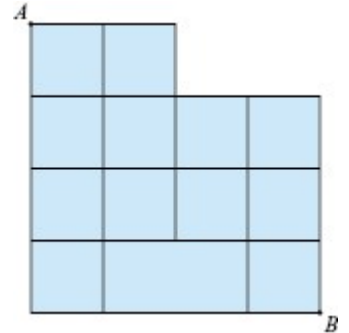
2. Determine the general simplified term for the following sequence: 4096, 2048, 1024,

STATION E

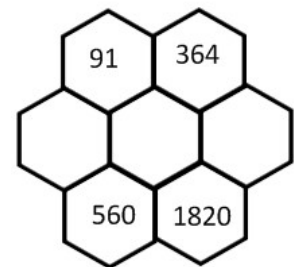
1. Determine the number of terms for the following sequence: 5, 20, 80, ... 81920
2. The 10th term of an arithmetic series is 34, and the sum of the first 20 terms is 710. Determine the 25th term.

STATION F

1. How many paths are there from A to B? Assume there is no backtracking.



2. Use your knowledge of Pascal's Triangle to fill in the missing numbers.



STATION G

1. In a lecture hall there are 16 seats in the first row. The number of seats in each successive row increases by 3. How many seats in the 15th row?
2. You agree to do the household chores every day for a month (30 days). You have a choice of being paid in one of two ways: 1 cent on day one, 2 cents on day two, 4 cents on day three, etc., doubling each day; or \$10 for each day. Which option would you choose and why?

STATION H

1. Find the 6th simplified term in the expansion $\left(2x - \frac{3}{\sqrt[4]{x}}\right)^{10}$
2. The terms given by $x-2$, $x+7$, 48 form a geometric sequence.
Find the value(s) of x .