NAME :	**TOTAL MARKS:**
ID :	(____)
GROUP:	14

1. Given ..., $y-6$, $2y+3$, $4y-1$, ... are three consecutive terms of an arithmetic sequence. Find the value of y and the common difference of the sequence.

[2 marks]

Solution:

2. Given two terms of a geometric sequence, $a_5 = 96$ and $a_8 = 768$. Find the first term and the common ratio.

[2 marks]

Solution:

3. Express $1.2\dot{4}\dot{8}$ as a fraction. Show all steps.

[2 marks]

Solution:

4. Find the term that contains x^9 in the expansion of $\left(x^2+\frac{2}{x}\right)^{12}$.

[2 marks]

Solution:

5. Given the following system of linear equations:

$$3x + 2y + z = 34$$
$$2x + 5y + 6z = 57$$
$$3x + 4y + 5z = 56$$

i) Write the system in the form of a matrix equation $AX = B$ where $X = \begin{pmatrix} x \\ y \\ z \end{pmatrix}$.

ii) Find the cofactor, adjoint, determinant and A^{-1} of matrix A.
Hence, find the values of x, y and z.
You must show all the necessary intermediate steps.

[Note: No mark will be given if you solve this question using any other methods.]

[6 marks]

Solution: