

SET 9A

1. WRITE DOWN IN SIMPLEST FORM, THE NEXT TERM OF EACH OF THE FOLLOWING SEQUENCES

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| (a) 2, 5, 8, 11, ... | (b) 2, 6, 18, 54, ... | (c) 1, 2, 4, 8, ... |
| (d) 1, 4, 9, 16, ... | (e) 1, 8, 27, 64, ... | (f) 27, 9, 3, 1, ... |
| (g) 9, 6, 3, 0, ... | (h) 8, -4, 2, -1, ... | (i) $\frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \dots$ |
| (j) $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \dots$ | (k) $\frac{2}{3}, \frac{5}{7}, \frac{8}{11}, \frac{11}{15}, \dots$ | (l) $\frac{2}{3}, \frac{4}{9}, \frac{6}{27}, \frac{8}{81}, \dots$ |
| (m) $\frac{2}{3}, \frac{4}{9}, \frac{8}{27}, \frac{16}{81}, \dots$ | (n) $\frac{9}{4}, \frac{8}{5}, \frac{7}{6}, \frac{6}{7}, \dots$ | (o) $\frac{4}{3}, \frac{9}{4}, \frac{16}{5}, \frac{25}{6}, \dots$ |

2. THE n -th TERM OF A CERTAIN SEQUENCE IS $4n - 3$.

- (i) Find the first five terms of the sequence, and the sum of the first five terms of the corresponding series.
- (ii) Determine the fiftieth term of the sequence.
- (iii) If 65 belongs to the sequence, find which term it is.
- (iv) Prove that 107 does not belong to the sequence.
- (v) Calculate the first member of the sequence greater than 300.

3. FOR THE SEQUENCE $\{80 - 3n\}$

- (i) Calculate the first four terms of the sequence, and hence evaluate $\sum_{r=1}^4 (80 - 3r)$
- (ii) Find the value of the fifteenth term, and determine which is the first negative term.
- (iii) Find if 14 belongs to the sequence; if so state which term it is.

4. FOR THE SEQUENCE $\{u_n\}$, WHERE $u_n = 2^{n-3}$

- (i) find the first six terms of the sequence, and hence calculate $\sum_{r=1}^6 u_r$
- (ii) determine which term of the sequence is 256
- (iii) show that 1000 does not belong to the sequence, and find the first term of the sequence greater than 1000.

5. GIVEN THE SEQUENCE $\{(-1)^{n^2}\}$