Arithmetic Progressions

Introduction of Arithmetic Progression Exercise

- **Q.1** Write the first four terms of each of the following sequences whose nth terms are -
 - (i) $a_n = 3n + 2$ (ii) $a_n = \frac{n-2}{3}$
 - (iii) $a_n = 3^n$ (iv) $a_n = \frac{3n-2}{5}$
 - (v) $a_n = (-1)^n \cdot 2^n$ (vi) $a_n = \frac{n(n-2)}{2}$
 - (vii) $a_n = n^2 n + 1$ (viii) $a_n = 2n^2 3n + 1$

(ix)
$$a_n = \frac{2n-3}{6}$$

- **Q.2** The general term of a sequence is given by $a_n = -4n + 15$. Is the sequence an A.P. ? If so, find its 15^{th} term and the common difference.
- **Q.3** The first term of an A.P. is 5, the common difference is 3 and the last term is 80; find the number of terms.
- **Q.4** The first term, common difference and last term of an A.P. are 12, 6 and 252 respectively. Find the sum of all terms of this A.P.
- **Q.5** Write the next term of the $\sqrt{8}$, $\sqrt{18}$, $\sqrt{32}$,

ANSWER KEY

1. (i) **5, 8, 11, 14** $\frac{1}{3}$, 0, $\frac{1}{3}$, $\frac{2}{3}$ (ii) (iii) 3, 9, 27, 81 (iv) $\frac{1}{5}, \frac{3}{5}, \frac{7}{5}, 2$ (v) -2, 4, -8, 16 (vi) $-\frac{1}{2}$, 0, $\frac{3}{2}$, 4 (vii) 1, 3, 7, 13 (viii) 0, 3, 10, 21 (ix) $-\frac{1}{6}, \frac{1}{6}, \frac{1}{2}, \frac{5}{6}$ 2. -45, - 4 3. 26 5412 4. 5. $\sqrt{50}$