

Ex 5.1

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P IV

4(viii) $-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \dots$

$$a_2 - a_1 = -\frac{1}{2} - (-\frac{1}{2})$$

$$= -\frac{1}{2} + \frac{1}{2}$$

$$= 0$$

$$a_3 - a_2 = -\frac{1}{2} + \frac{1}{2}$$

$$= 0$$

$$a_4 - a_3 = -\frac{1}{2} + \frac{1}{2}$$

$$= 0$$

\therefore diff. remains const.

\therefore A.P.

4(x) $1, 3, 9, 27, \dots$

$$a_2 - a_1 = 3 - 1$$

$$= 2$$

$$a_3 - a_2 = 9 - 3$$

$$= 6$$

$$\therefore a_2 - a_1 \neq a_3 - a_2$$

\therefore not A.P.

4(x) $a, 2a, 3a, 4a, \dots$

$$a_2 - a_1 = 2a - a$$

$$= a$$

$$a_3 - a_2 = 3a - 2a$$

$$= a$$

$$a_4 - a_3 = 4a - 3a$$

$$= a$$

\therefore diff const.

\therefore A.P.

4(xi) a, a^2, a^3, a^4

$$a_2 - a_1 = a^2 - a$$

$$= a(a-1)$$

$$a_3 - a_2 = a^3 - a^2$$

$$= a^2(a-1)$$

$$\therefore a_2 - a_1 \neq a_3 - a_2$$

\therefore not AP

4(xii) $\sqrt{2}, \sqrt{8}, \sqrt{18}, \sqrt{32}, \dots$

$$= \sqrt{2}, 2\sqrt{2}, 3\sqrt{2}, 4\sqrt{2}, \dots$$

$$a_2 - a_1 = 2\sqrt{2} - \sqrt{2}$$

$$= \sqrt{2}$$

$$a_3 - a_2 = 3\sqrt{2} - 2\sqrt{2}$$

$$= \sqrt{2}$$

$$a_4 - a_3 = 4\sqrt{2} - 3\sqrt{2}$$

$$= \sqrt{2}$$

\therefore diff remains same

\therefore A.P.

4(xiii) $\sqrt{3}, \sqrt{6}, \sqrt{9}, \sqrt{12}, \dots$

$$a_2 - a_1 = \sqrt{6} - \sqrt{3}$$

$$= \sqrt{3}(\sqrt{2} - 1)$$

$$a_3 - a_2 = \sqrt{9} - \sqrt{6}$$

$$= \sqrt{3}(\sqrt{3} - \sqrt{2})$$

$$\therefore a_3 - a_2 \neq a_2 - a_1$$

\therefore AP

4(x) $1^2, 3^2, 5^2, 7^2, \dots$

$$= 1, 9, 25, 49, \dots$$

$$a_2 - a_1 = 9 - 1$$

$$= 8$$

$$a_3 - a_2 = 25 - 9$$

$$= 16$$

$$\therefore a_3 - a_2 \neq a_2 - a_1, \text{ not AP}$$