

2(iii) $\sqrt{3}, 2\sqrt{3}, 3\sqrt{3}, \dots$

$$a_2 - a_1 = a_3 - a_2 = \sqrt{3}$$

\therefore AP

next 3 terms $4\sqrt{3}, 5\sqrt{3}, 6\sqrt{3}$

2(iv) $a+b, a+1+b, a+1+b+1, \dots$

$$a_2 - a_1 = a_3 - a_2 = 1$$

\therefore AP

2(v) $a, 2a+1, 3a+2, 4a+3$

$$a_2 - a_1 = a_3 - a_2 = a_4 - a_3 = a+1$$

\therefore AP.

next 3 terms

$$5a+4, 6a+5, 7a+6$$

3(i) $a = \frac{1}{2}, d = -\frac{1}{6}$

$$\frac{1}{2}, \frac{1}{2} - \frac{1}{6}, \frac{1}{2} - \frac{2}{6}$$

$$= \frac{1}{2}, \frac{2}{6}, \frac{1}{6}$$

$$= \frac{1}{2}, \frac{1}{3}, \frac{1}{6}$$

3(ii) $a = -5, d = -3$

$$-5, -5 + (-3), -5 + 2(-3)$$

$$= -5, -8, -11$$

3(iii) $a = \sqrt{2}, d = \frac{1}{\sqrt{2}}$

$$\sqrt{2}, \sqrt{2} + \frac{1}{\sqrt{2}}, \sqrt{2} + \frac{2}{\sqrt{2}}$$

$$= \sqrt{2}, \frac{2+1}{\sqrt{2}}, \frac{2+2}{\sqrt{2}}$$

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

4 AP

$$a, 7, b, 23, c$$

$$a_1, a_2, a_3, a_4, a_5$$

$$a_4 - a_2 = 23 - 7$$

$$a + 3d - a - d = 16$$

$$2d = 16$$

$$\Rightarrow d = 8$$

$$\therefore a = 7 - 8 = -1$$

$$b = 7 + 8 = 15$$

$$c = 23 + 8 = 31$$

5 $a_5 = 19$

$$a_{13} - a_8 = 20$$

$$a + 12d - a - 7d = 20$$

$$\Rightarrow 5d = 20$$

$$\Rightarrow d = 4$$

$$a_5 = 19$$

$$a + 4d = 19$$

$$a + 16 = 19$$

$$\Rightarrow a = 19 - 16 = 3$$

\therefore AP $3, 7, 11, 15, \dots$