

$$\{ \overset{+}{\omega}, \overset{+}{9}, \overset{+}{13}, \overset{+}{17}, \dots \} \Rightarrow \alpha_n = 4n + 1$$

$$\alpha_{10} = 4(10) + 1 = 41$$

$$\{ \overset{+}{6}, \overset{+}{10}, \overset{+}{14}, \overset{+}{18}, \dots \} \Rightarrow \alpha_n = 4n + 2$$

$$\alpha_{12} = 4(10) + 2 = 42 \Rightarrow S_{12} = \frac{1}{2} (6 + 42) = 24$$

$$\alpha_{19} + \alpha_{20} + \alpha_{21} + \alpha_{22} = 4\alpha_1 + 111d = 4(6) + 111(4) = 454$$

$$\{ \overset{+1-\sqrt{3}}{1+\sqrt{3}}, \overset{+1-\sqrt{3}}{2}, \overset{+1-\sqrt{3}}{3-\sqrt{3}}, \dots \} \Rightarrow \alpha_n = (1-\sqrt{3})n + 2\sqrt{3} \Rightarrow \alpha_{20} - \alpha_{23} = (1-\sqrt{3})20 + 2\sqrt{3} - ((1-\sqrt{3})23 + 2\sqrt{3}) = 3$$

$$20 - 23 = -3 \Rightarrow 20 - 23 = -3 \Rightarrow 20 - 23 = -3$$

$$\{ \overset{+2x\omega}{\omega}, \overset{+2x\omega}{3x2\omega}, \omega \Rightarrow 3x2\omega + 2x\omega = \omega \Rightarrow 2\omega(x+2) = \omega \Rightarrow \omega^x \times \omega^2 = \omega^1 \Rightarrow x+2=1 \Rightarrow x=-1 \Rightarrow x+y=1 \Rightarrow y=2 \Rightarrow \frac{x+y}{2} = 1.5 \Rightarrow y = 3 - x = 3 - (-1) = 4$$

$$x, y \Rightarrow \frac{x+y}{2} = 1.5 \Rightarrow y = 3 - x \Rightarrow y = 3 - (-1) = 4$$

$$\{ \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \dots \} \Rightarrow -3, 0, 3, 6 \Rightarrow \alpha_4 = 6$$

$$\{ \overset{+2}{3}, \overset{+2}{7}, \overset{+2}{11}, \dots \} \Rightarrow \alpha_n = 4n + 1, \{ \overset{+3}{2}, \overset{+3}{5}, \overset{+3}{8}, \dots \} \Rightarrow \beta_n = 3n - 1 \Rightarrow c_n = \alpha_n - \beta_n$$

$$\alpha_{20} = 4(20) + 1 = 81, \beta_{20} = 3(20) - 1 = 59 \Rightarrow c_{20} = 81 - 59 = 22$$

$$\alpha_1 + \alpha_2 + \alpha_3 = 1 \Rightarrow \alpha_1 + 2d = 1 \Rightarrow 3\alpha_1 + 3(2d) = 1 \Rightarrow 3\alpha_1 - 6 = 1 \Rightarrow \alpha_1 = 1 \Rightarrow \alpha_2 = 3 \Rightarrow \alpha_3 = 5$$

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$$-3d = -1 \Rightarrow d = \frac{1}{3}$$

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$$\left. \begin{array}{l} \alpha_1 + \alpha_2 + \alpha_3 = 1 \\ \alpha_4 + \alpha_5 = 2 \end{array} \right\} \Rightarrow \left\{ \begin{array}{l} 3\alpha_1 + 3d = 1 \\ 2\alpha_1 + 7d = 2 \end{array} \right. \Rightarrow \left\{ \begin{array}{l} \alpha_1 + d = \frac{1}{3} \\ 2\alpha_1 + 7d = 2 \end{array} \right. \Rightarrow \alpha_1 = 1 \Rightarrow \alpha_2 = 3 \Rightarrow \alpha_3 = 5$$

$$-1d = -1 \Rightarrow d = 1$$

$$S_9 = 9S_1 = \frac{9}{2} (2\alpha_1 + 11d) = \frac{9}{2} (2\alpha_1 + 11d) \Rightarrow 9\alpha_1 + 49.5d = 27\alpha_1 + 11d \Rightarrow d = 2\alpha_1 \Rightarrow$$

$$\frac{\alpha_{20}}{\alpha_1} = \frac{\alpha_1 + 19(2\alpha_1)}{\alpha_1 + 19(2\alpha_1)} = \frac{39\alpha_1}{39\alpha_1} = 1$$

$$\left. \begin{array}{l} a_1 = 11 \\ a_n = 3\omega \end{array} \right\} \Rightarrow a_1 + 4d = 3\omega \Rightarrow 11 + 4d = 3\omega \Rightarrow d = \epsilon \Rightarrow a_n = \epsilon n + 4 = 3\omega = b_\epsilon \Rightarrow$$

$$\begin{array}{l} b_\epsilon = 23 \\ b_1 = 31 \end{array} \Rightarrow$$

-10

$$\begin{array}{l} b_1 + 4d = 23 \\ b_1 = 31 \end{array}$$

$$\begin{array}{l} 4d = -1\omega \Rightarrow \\ d = -\omega \end{array}$$

$$\Rightarrow -\omega = \frac{13 - 31}{n + 1} \Rightarrow -\omega n - \omega = -1\omega \Rightarrow -\omega n = -1\omega \Rightarrow n = 1$$

