

$$\begin{array}{c} 9 \\ \hline 4 \end{array} \quad \begin{array}{c} 13 \\ \hline 4 \end{array} \quad \begin{array}{c} 17 \\ \hline 4 \end{array}$$

$$a_n = 4n + 1$$

$$a_1 = 4 \times 1 + 1 = 5$$

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$$\begin{array}{c} 1 \\ \hline 4 \end{array} \quad \begin{array}{c} 13 \\ \hline 4 \end{array} \quad \begin{array}{c} 17 \\ \hline 4 \end{array}$$

$$S_1 = \frac{n}{2} (2a_1 + (n-1)d)$$

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$$S_1 = \frac{1}{2} (2 + (9 \times 4)) = 19$$

$$a_1 + a_2 + a_3 + a_4 = 4a_1 + 11d = 4(4) + 11(4) = 56$$

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$$\begin{array}{c} 1 + \sqrt{3}, 2, 3 - \sqrt{3}, \dots \\ \hline 1 - \sqrt{3} \quad 1 - \sqrt{3} \end{array}$$

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

$$a_1 - a_{10} = (1 - \sqrt{3}) \times 1 + 2\sqrt{3} - ((1 - \sqrt{3}) \times 10 + 2\sqrt{3})$$

$$= 1 - \sqrt{3} - 10 + 10\sqrt{3} - 2\sqrt{3} = -9 + 8\sqrt{3}$$

$$+ 2 \times a^{2x} + 2 \times a^{2x}$$

$$a^{2x}, 2 \times a^{2x}, a^{2x}$$

$$3 \times a^{2x} + 2 \times a^{2x} = a^{2x}$$

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$$a^{2x} (3 + 2) = a^{2x}$$

$$a^{2x} \times a = a^{2x+1}$$

$$2x + 1 = 2x - x$$

$$x, y \rightarrow 2x + y \rightarrow y, 2x$$

$$2x = 2$$

$$2y, 2x = 2$$

$$2 = 1$$

$$2(2x-1) = 2x-1+2x$$

$$2\left(\frac{1}{p}\right) = 2, 2\left(\frac{1}{p}\right) - 1, 2\left(\frac{1}{p}\right)$$

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$$2x-1 = 2x-1$$

$$1-2, 1-1, 2$$

$$2 = 2x$$

$$\begin{array}{c} -2, 0, 2 \\ \hline 2 \end{array}$$

$$x = \frac{1}{2}$$

$$a_n = 2n - 4$$

$$a_1 = 2 \times 1 - 4 = -2$$

$$2, 4, 6, \dots, b_n = 2n$$

$$2, 4, 6, \dots, a_n = 2n+1$$

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$$c_n = 2n-1$$

$$a_1 = 2$$

$$a_n = 2n+1$$

$$b_1 = 2$$

$$2n \leq 2+1$$

$$n \leq \frac{2+1}{2} = 1.5$$

$$\begin{aligned}
 a_1 + a_2 + a_3 &= 11 \rightarrow 3a_1 + 3d = 11 \rightarrow a_1 + d = \frac{11}{3} \\
 a_1 + a_2 + a_3 &= 10 \rightarrow 3a_1 + 3d = 10 \rightarrow a_1 + d = \frac{10}{3} \\
 -a_1 + a_1 + 3d + a_1 + 3d & \quad \quad \quad d = \frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 3a_1 + 3d &= 11 \rightarrow a_1 = \frac{11}{3} - d \\
 a_2 - a_1 + a_1 &= a_1 + 3d - a_1 \quad -d + a_1 = a_1 + d = \frac{11}{3} - \frac{1}{6} = \frac{22}{6} - \frac{1}{6} = \frac{21}{6} = \frac{7}{2} \\
 a_1 &= \frac{11}{3} - \frac{7}{2} = \frac{22}{6} - \frac{21}{6} = \frac{1}{6}
 \end{aligned}$$

$$\begin{aligned}
 a_1 + a_2 + a_3 &= 10 \quad \quad \quad a_1 + a_2 + d + a_1 + 3d = 10 \quad \quad \quad 3a_1 + 3d = 10 \\
 a_2 + a_3 &= 7 \quad \quad \quad a_1 + 3d + a_1 + 3d = 3a_1 + 6d = 7 \\
 -10d &= -7a_1 \rightarrow \boxed{d = \frac{7}{10}a_1} \\
 a_1 + d &= 10 \rightarrow a_1 = 10 - d \quad d = 10 - 3 = 7 \quad \quad \quad a_n = a_1 + (n-1)d \\
 a_1 &= 7 + 9 \times 3 = 34
 \end{aligned}$$

$$\begin{aligned}
 S_9 &= 9 S_{10} \quad \quad \quad \frac{9}{2} (2a_1 + 10d) = \frac{9}{2} (2a_1 + 9d) \\
 9(a_1 + 5d) &= 9(a_1 + 4.5d) \quad \quad \quad 9a_1 + 45d = 9a_1 + 40.5d \\
 9d &= 10a_1 \rightarrow d = \frac{10}{9}a_1
 \end{aligned}$$

$$\frac{a_9}{a_1} = \frac{a_1 + 10d}{a_1 + 4.5d} = \frac{a_1 + 10 \cdot \frac{10}{9}a_1}{a_1 + 4.5 \cdot \frac{10}{9}a_1} = \frac{11a_1}{11a_1} = 1$$

$$\begin{aligned}
 a_1 &= 11 \\
 a_2 &= 3a_1 \quad \quad \quad \rightarrow a_1 + 4d = 3a_1 \rightarrow 11 + 4d = 33 \rightarrow d = 8 \rightarrow a_n = 8n + 11
 \end{aligned}$$

$$\begin{aligned}
 a_2 &= 3(11) + 11 = 44 = b_2 \\
 b_2 &= 44 \\
 b_1 &= 33
 \end{aligned}$$

$$b_1 + 3d = 44$$

$$b_1 = 33$$

$$d = 5$$

$$-a = \frac{11-33}{n+1}$$

$$a_n - a = -10$$

$$a_n = 1$$

$$n = 3$$