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$$a_1 = 40$$

$$a_2 = 41$$

$$a_2 = 40 + 3d = 41 \rightarrow 3d = 1 \rightarrow d = \frac{1}{3}$$

$$401 = 40 + 3n \rightarrow 17d = 3n \rightarrow n = \frac{17d}{3} = \frac{17}{9}$$

۴۰۱ جمله ۲۵ام این دنباله است.

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$$100 \leq 4n + 3 \leq 999 \Rightarrow 100 \leq 4n + 3 \rightarrow 97 \leq 4n \rightarrow n \geq 14$$

$$\rightarrow 4n + 3 \leq 999 \rightarrow 4n \leq 996 \rightarrow n \leq 149$$

$$(149 - 14) + 1 = 136$$

۱۳۶ عدد صحیح وجود دارد.

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$$a_{n+1} + a_{n+2} + a_{n+3} = -4n + 12$$

$$a_{14} + a_1 = ?$$

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$$a_3 = 4^3 - 1$$

$$a_1 = 4^1 + 1$$

$$a_{13} = 4^{13} - 3$$

$$a_3 + a_1 + a_{13} = ?$$

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$$a_{14} - a_{10} = 4d = 4 \rightarrow d = 1, 4$$

$$a_{14} + a_{10} = 4a + 40d = 4a \rightarrow 4a = 40 + 4a \rightarrow -4a = 4a \rightarrow a = -10, 4$$

$$a_{21} = -10, 4 + (20 \times 1, 4) = 40 - 10, 4 = 29, 6$$

$$\frac{a_4 + a_5 + a_1 + a_9 + a_{10}}{a_1 + a_7 + a_8 + a_2 + a_3} = 10 \rightarrow \frac{5a + 10d}{5a + 10d} = 10 \rightarrow 5a + 10d = \frac{5}{10}a + \frac{10}{10}d$$

$$5a - \frac{5}{10}a = \frac{10}{10}d - 10d \rightarrow \frac{10-5}{10}a = \frac{10-100}{10}d \rightarrow \frac{5}{10}a = \frac{-90}{10}d$$

$$a = \frac{-90}{5}d = -18d \quad a_7 = -18d + d \rightarrow a_7 = -17d$$

$$t_n = t_{n-1} + 1d \quad -V$$

$$\frac{t_9 - t_5}{t_7} = 9 \rightarrow \frac{(t_9 - t_5)(t_7 + 1d)}{t_7(t_7 + 1d)} = 9 \rightarrow \frac{(t_9 + 1d - t_5 - 1d)(t_7 + 1d + t_7 + 1d)}{t_7 + 1d}$$

$$\frac{t_8(t_7 + 1d)}{t_7 + 1d} = t_8 \frac{t_7 + 1d}{1 + \frac{1d}{t_7}}$$

$$\frac{1 + \sqrt{10} - 1(1 - 9\sqrt{10})}{10} = \frac{1 + 10\sqrt{10} - 1 + \sqrt{10}}{10} = \frac{11\sqrt{10}}{10}$$

$$d = \sqrt{10}$$

$$\frac{100 + 100}{100} = 1V \rightarrow \frac{100 - 100}{100} = 1V \rightarrow 100 - 100 = 100 \rightarrow 100 = 100$$

$$n = \frac{100}{100}$$

$$a + 14d + a + 1d = 2a + 15d \quad -10$$