

$t_n = 1, 5, 17, 29, \dots \Rightarrow a = \frac{3}{2}$
 $t_1 = 1 = \frac{3}{2}(1) + b \Rightarrow b = -\frac{1}{2}$

$t_n = \frac{3}{2}n^2 - \frac{n}{2} \Rightarrow a_{10} = (\frac{3}{2} \times 100) + (-\frac{1}{2}) = 149$

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$t_n = 0, 1, 3, \dots \Rightarrow t_n = \frac{n(n-1)}{2} \Rightarrow \frac{n(n-1)}{2} = 55 \Rightarrow n(n-1) = 110$

$n = 11$

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$t_n = 0, 1, 3, 6, 10, 15, \dots \rightarrow t_n = \frac{n(n+1)}{2} \rightarrow t_{11} = \frac{11 \times 12}{2} = 66$

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$\Rightarrow 15 \leq t_n \leq 66$

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$a_1 = -1$
 $a_2 = \frac{1}{2}$
 $a_3 = -\frac{1}{4}$
 $a_4 = \frac{1}{8}$
 $\vdots$

$\frac{1}{2} = a_2 = -1 \times \frac{1}{2}$
 $-\frac{1}{4} = a_3 = \frac{1}{2} \times (-\frac{1}{2})$

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

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$b_3 = -27 - 21 = -48$

$a_k = -5k + 22$

$-5k + 22 = -48 \Rightarrow 5k = 70 \rightarrow k = 14$

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$$a_1 - a_5 = 12 \rightarrow a + 4d - a - 4d = 12 \rightarrow 0 = 12 \rightarrow d = 3$$

$$a_4 - 1 \rightarrow a + 3d - a = 3d \rightarrow 3 \times 3 = 9$$

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$$a_1 = 10 \Rightarrow d = \frac{10 - 1}{1} = 9 \rightarrow a_1 = 10, a_2 = 10 + 9 = 19$$

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$$b_n = 11 \rightarrow a = 11 \rightarrow d = \frac{11 - 1}{1} = 10 \rightarrow b_n = 11n - 10$$

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$$t_n = \frac{1}{n}, \frac{1}{2}, \frac{1}{3}, \frac{1}{4} \rightarrow t_n = \frac{1}{n} \rightarrow \frac{1}{n} < \frac{1}{2} \rightarrow n > 2$$

$$n < 10$$

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$$t_n = 4, 9, 16, 25, \dots \rightarrow a = 4, d = 5$$

$$c = 0$$

$$t_1 = 4 = \frac{1}{1} + b$$

$$b = 3$$

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$$t_n = An^2 + Bn = \frac{1}{n} \rightarrow A = \frac{1}{n^3}, B = \frac{1}{n^2}$$

$$= \frac{44}{1} = 44$$

$$t_n = -4, -9, -16, \dots$$

$$a = \frac{1}{1} = 1$$

$$t_1 = -4 = 1 + b \rightarrow b = -5$$

$$c = 0$$

$$t_n = n^2 - 5n$$

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$$t_1 = 1 \rightarrow d = \frac{1 - 1}{1} = 0 \rightarrow t_n = n$$

$$t_2 = 2$$

$$\rightarrow n^2 - n - 4 = 2n + 1 \rightarrow n^2 - 3n - 5 = 0 \rightarrow n = 4$$

$$n = 4$$