

نام و نام خانوادگی ..... پاسبان ..... پاسنامه تشریحی تکلیف شماره ..... کلاس ..... (هم درخت) .....

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$$a_1 = 1 \rightarrow (1)^2 + 0$$

$$a_2 = 5 \rightarrow (2)^2 + 1$$

$$a_3 = 12 \rightarrow (3)^2 + 3$$

$$a_4 = 22 \rightarrow (4)^2 + 6$$

$$\Rightarrow a_n = (n)^2 + \frac{(n-1)(n)}{2} \xrightarrow{\text{در } n=10} a_{10} = (10)^2 + \frac{(10-1)(10)}{2} = 100 + 45 = 145$$

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تعداد شایسته ها را  $a_n = \frac{(n-1)(n)}{2} \rightarrow a_n = 55 = \frac{n(n-1)}{2}$   
 $n(n-1) = 110 \rightarrow \begin{cases} n=11 \\ n=-10 \end{cases} \rightarrow \text{سل } n=11$

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تعداد شایسته ها  $a_n = 1n - 3$   
 $a_1 = 1 - 3 = -2$   
 $a_2 = 2 - 3 = -1$   
 $a_3 = 3 - 3 = 0$   
 $a_4 = 4 - 3 = 1$   
 $a_5 = 5 - 3 = 2$   
 $a_6 = 6 - 3 = 3$   
 $a_7 = 7 - 3 = 4$   
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$$a_{10} = a_1 + 9d \xrightarrow{11^3} 11^3 d = 11^3$$

$$d = 11^2$$

$$\rightarrow a_4 = a_1 + 3d \xrightarrow{d=11^2} a_4 = 11^2$$

دifferences are 11^2

$$\rightarrow a_4 < a_1 \Rightarrow \text{the sequence is decreasing} \Rightarrow |a_{10} - a_1| = 11^3$$

$$|3d| = 11^3$$

$$d = \pm 11^2$$

$$a_4 - a_1 = 3d \Rightarrow a_4 - a_1 = \pm 11^3$$

دifferences are 11^3

6

$$a_1 = 1 \rightarrow a_1 - d = a_1 \rightarrow a_1 = 1$$

$$a_2 = 10 \rightarrow a_2 - d = a_1 \rightarrow a_1 = 11$$

$$\rightarrow a_2 = a_1 + d \rightarrow d = 10$$

$$b_1 = 1 \rightarrow b_1 = b_1 + d' \rightarrow b_1 = 11$$

$$b_2 = 11 \rightarrow 11 = 1 + d' \rightarrow d' = 10$$

$$b_n = 1 + (n-1)10 = 10n - 9$$

(a\_1 + (n-1)d) < (a\_n + b)

7

$$t_n = \frac{1}{0}, \frac{1}{1}, \frac{1}{2}, \frac{1}{3}, \dots \Rightarrow t_n = \frac{n-1}{n+1} \rightarrow \frac{n-1}{n+1} < \frac{1}{2} \rightarrow n-1 < n+1$$

$$n < 11$$

$$n < \frac{11}{2} = 5.5$$

$$n \in \mathbb{N} \rightarrow n \leq 5 \rightarrow \text{جملات اولی که بیشتر از } \frac{1}{2} \text{ اند}$$

5 terms

8

$$t_n = 9, 9, 9, 9, 9, 9, \dots$$

$$3A + 2B = 3\left(\frac{1}{v}\right) + 2\left(\frac{10}{v}\right) = \frac{3}{v} + \frac{20}{v} = \frac{23}{v}$$

$$t_n = \frac{23}{v} n^2 + \frac{10}{v} n$$

$$a_n^2 + b_n + c$$

$$2a = -3$$

$$a = -\frac{3}{2}$$

$$c = 0$$

$$t_1 = \frac{23}{v}(1)^2 + b(1) = 9 \rightarrow b = \frac{10}{v}$$

$$t_2 = \frac{23}{v}(2)^2 + b(2) = 9 \rightarrow b = \frac{10}{v}$$

9

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

$$a_n^2 + b_n + c$$

$$t_1 = 1(1)^2 + b(1) + c = -9 \rightarrow b + c = -10$$

$$t_2 = 1(2)^2 + b(2) + c = -9 \rightarrow b + c = -5$$

$$b = -1 \rightarrow c = -9$$

$$t_n = n^2 - n - 9$$

$$a_n = t_n \rightarrow a_n + 11 = n^2 - n - 9 \rightarrow n^2 - 2n - 18 = 0$$

$$(n-4)(n+3) = 0 \rightarrow n = 4$$

$$a_4 = 4^2 - 4 - 9 = -9$$

$$a_n = a + (n-1)d$$

$$a_n = a + (n-1)d \rightarrow a_n = a + (n-1)d$$

$$a_n = a + (n-1)d \rightarrow a_n = a + (n-1)d$$

10