

$$\{1\}, \{2, 3, 4\}, \{5, \dots, 9\}, \dots$$

$$\frac{45}{1} \rightarrow 45$$

$$\frac{11}{9^2} \Rightarrow b = \frac{a+c}{2}$$

سوال 1

$$= \frac{45+11}{2} = \frac{56}{2} = 28$$

$$\{1, 2, 3\}, \{4, \dots, 12\}, \{13, 14, 15, \dots, 39\}, \{40, \dots, 121\}, \{122, \dots, 343\}$$

سوال 2

$$\frac{343+121}{2} = 232$$

n	1	2	3	4	5	6	7	8	9	10
			1		2		3		4	
		2	2		2	0		2	-2	

$$\begin{cases} r^2 & n = 3k \\ -r^2 + 4 & n = 3k+1 \\ \left\lfloor \frac{n}{3} \right\rfloor + a & n = 3k+2 \end{cases}$$

سوال 3

$$2 + 2 + 1 + 0 + 2 + (-2) + n(1) + n(2) + n(1) + n(2) = 19$$

$$an \leq an^r + bn + c$$

سوال 4

$$a = \left(\frac{1}{v_0}\right)(-a_0) = -\frac{1}{a}$$

$$\begin{cases} a_0 \leq 1f \Rightarrow -\frac{1}{a}(r_0) + ab + c = 1f \\ av = 14r \Rightarrow -\frac{1}{a}(e_9) + vb + c = 14r \end{cases} \Rightarrow \begin{cases} b = 1 \\ c = 1 \end{cases}$$

$$an = -\frac{1}{8}n^2 + 4n - 1$$

$$a_{10} = -\frac{1}{8}(10)^2 + 4(10) - 1 = 1f$$

$$\frac{a_{10}}{a_1} = \frac{1f}{\frac{1f}{8}} = 8$$

$$a_1 = -\frac{1}{8} + 4 - 1 = \frac{1f}{8}$$

سوال 5

$$fd = tr - tr = av - ar \Rightarrow fd = \omega d' = \frac{d'}{d} = \frac{r}{a}$$

$$a_{10} = 0 \Rightarrow a_1 + 9d' = 0 \Rightarrow a_1 = -9d'$$

$$\frac{a_{10}}{a_1} = \frac{a_1 + 9d'}{a_1} = \frac{-9d' + 9d'}{-9d'} = \frac{\omega d'}{d} \times \frac{r}{a} = \textcircled{f}$$

$$9a^r = 2a^r a + 3a^r a$$

$$\frac{tr}{d}$$

سوال 6

$$9(a+d)^r = 2(a+d)a + 3(a+d)a$$

$$9a^r + 12ad + 9d^r = 2a^r + 10ad + 3a^r + 3ad$$

$$\frac{a}{d} \leq a \leq da$$

$$6a^r - 9d^r + 8ad = 0 \Rightarrow d^r(6a^r + 8a - 9) = 0$$

$$(2a-3)(a+2) = 0 \Rightarrow a = \frac{3}{2}, a = -2$$

Arman

$$\frac{a+3d}{d} = \frac{a}{d} + 3 \Rightarrow a+3$$

$$1 = -2 \rightarrow \frac{3}{2}$$

سوال ۷

$$b, \frac{a}{r}, \frac{c}{r} \Rightarrow a, b, c \Rightarrow a, a+d, a+rd$$

$$\frac{b}{a}, \frac{\frac{a}{r}}{a}, \frac{\frac{c}{r}}{a} \Rightarrow \frac{b}{a}, \frac{1}{r}, \frac{c}{a}$$

$$\Rightarrow \frac{b}{a}, \frac{1}{r}(b-d), \frac{1}{r}(b+d)$$

$$\Rightarrow \left[\frac{1}{r}(b-d) \right]^r = b \times \frac{1}{r}(b+d) \Rightarrow \frac{1}{r}(b^r + d^r - rbd) = \frac{1}{r}(b^r + bd)$$

$$d^r - rbd = bd \Rightarrow d^r - rbd = 0 \Rightarrow d(d - rb) = 0 \Rightarrow d - rb = 0 \Rightarrow d = rb$$

$$b, \frac{1}{r}(b - rb), \frac{1}{r}(b + rb) \Rightarrow b, -b, b$$

$$\frac{1}{x-1} \times \frac{1}{x-1} = 1$$

سوال ۸

$$a, b, c \Rightarrow a, b, c \Rightarrow a-d, a, a+d$$

$$\frac{a}{q}, q, aq$$

$$\frac{a}{q}, q, aq$$

$$r(c-d) = c - rd + c$$

$$rc - rd = rc - rd$$

سوال ۹

$$\frac{aq^0}{(aq)^r} + \frac{aq}{a^r} = r$$

$$\frac{aq^0}{aq^r} + \frac{aq}{a^r} = r$$

$$\frac{q^r}{a^r} + \frac{q}{a} = r$$

$$\frac{q}{a} = r - \frac{q^r}{a^r}$$

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سوال ۱۰

$$a, \sqrt{a} \Rightarrow a^r = a \Rightarrow a^r q^r = a, q^r, a, q = 1$$

$$a, \sqrt{a} \Rightarrow aq^r, \sqrt{a} \Rightarrow aq^r, \frac{1}{r} \Rightarrow a^r, \sqrt{a} \Rightarrow a^r, \frac{1}{r}$$

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