

تکلیف ۱۴

موضوع: دنباله

۲۰

پنجمه شهریور

۱/۲، ۳/۲، ۵/۲، ۷/۲

$$1, 14, 32, 44, 128$$

۱۳

$$t_n = \frac{1}{r} (r)^{n-1}$$

(الف) (۱)

$$t_{10} = \frac{1}{r} (r)^9 = 254$$

۲۲ وسط هر یک عدد در بین دو عدد است.

$$t_n = \frac{1}{r} (r)^{n-1} = r^v$$

$$r^{n-1} = r^v$$

$$n-1 = v$$

$$n = 9$$

۱)

$$\frac{a_{11}}{a_{1r}} = r^2 = 14$$

۱۲

$$a_2 = 12$$

(۲)

$$a_n = a_2 r^r = 94 \Rightarrow r^r = 1 \Rightarrow r = 1$$

$$a_{11} = a_n \times r^r = 94 \times 2 = 188$$

$$(a_r)^2 = (a_1 a_9)^2$$

۱۲

$$(a_r)^2 = 2 \times 2$$

(ب) (۳)

$$a_r^2 = (a_1 a_9)^2$$

$$a_r = r$$

$$\sqrt{r} = a_1 a_9$$

$$r^a \times r^b = (\sqrt{r})^r$$

$$r^{a+b} = r^{\frac{r}{2}}$$

$$a+b = \frac{r}{2}$$

$$\Leftrightarrow a+b = 8$$

(۴)

$$\frac{a+b+c}{r+d=C}$$

(۵)

$$\frac{a_r}{a_r} = \frac{a_{11}}{a_r} = r \Rightarrow \frac{n}{1-n} = \frac{n+1}{n} \Rightarrow nr = 1 - nr$$

$$2nr = 1$$

$$nr = \frac{1}{r} \Rightarrow n = \pm \frac{\sqrt{r}}{r}$$



$$a + ar^r = 1n$$

$$ar + ar^r = 1r$$

$$\frac{a(1+r^r)}{ar(1+r)} = \frac{(1+r)(r^r+1-r)}{r(1+r)} = \frac{1n}{1r} \quad (4)$$

$$\frac{r^r - r + 1}{r} = \frac{1}{r} \Rightarrow rr^r - rr + r = 1r \Rightarrow rr^r - 1 \cdot r + r = 0$$

$$r^r - 1 \cdot r + 1 = 0$$

$$(r-1)(r-1) = 0$$

$$\frac{1}{r}, \frac{1}{r} = r$$

$$a + rva = 1n$$

$$1na = 1n$$

$$a = 1 \Rightarrow a_r = ar^r = (1v)$$

$$\frac{ar}{q} + ar + arq = 1r \Rightarrow \frac{r}{q} + r = 1 \Rightarrow r^r - 1 \cdot q + r = 0 \quad (v)$$

$$\frac{ar}{q} \times ar \times arq = (ar)^r = 1r \Rightarrow ar = r$$

$$q^r - 1 \cdot q + q = 0$$

$$(q-1)(q-1) = 0$$

$$q = \frac{1}{r} = r \cdot \frac{1}{r}$$

$$\begin{array}{|c|} \hline 1, r, q, \dots \\ \hline q, r, 1, \dots \\ \hline \end{array}$$

$$r \left(\frac{r^r - 1}{r - 1} \right) = r^r - 1 \cdot \Delta 90 \text{ E} \text{ (int)} \quad (1)$$

$$(r \times r \times r^q)^a = (r \times r^q)^a \quad (b)$$

$$ar - a_1 = a(q-1)$$

$$ar - ar = a(q^r - q)$$

$$a_r - ar = a(q^r - q^r)$$

$$a(q-1)a(q^r - q^r) = (a(q^r - q))^r \quad (9)$$

$$arq^r(q-1) = arq^r(q-1) \quad \text{دنبند حندى}$$

$$r = \frac{ar^r q}{a(q-1)} = \frac{ar(q-1)}{a(q-1)} = q$$



1.

$$ii) a_1 + a_r + a_{r+1} + \dots + a_n$$

$$a + ad + ad^2 + a + rd + \dots + a + (n-1)d = n(a) + \frac{(n \times (n-1))d}{2}$$

$$\frac{r h(a)}{2} + \frac{(n \times (n-1))d}{2} = \frac{n}{2} (ra + (n-1)d)$$

$$ii) a + aq + aq^2 + \dots + aq^{n-1}$$

$$a (1q + q^2 + q^3 + \dots + q^{n-1}) = aA, a \left(\frac{q^n - 1}{q - 1} \right)$$

$$A = 1 + q + q^2 + \dots + q^{n-1}$$

$$qA = q + q^2 + q^3 + \dots + q^n$$

$$\left. \begin{array}{l} A \\ qA \end{array} \right\} \rightarrow qA - A = q^n - 1$$

$$A(q-1) = q^n - 1$$

$$A = \frac{q^n - 1}{q - 1}$$