

Subject.....

Day..... Month..... Year.....

$$1 \text{ داده: } 1 + q + q^2 + q^3 + q^4 = 255 \quad (2)$$

$$2 \text{ جمله اول: } \frac{121}{11}$$

$$3 \text{ مجموع } S_5 = \frac{121}{11} \times 255 = 121 \times 23 = 2783$$

$$4 \text{ جمله اول: } A = \frac{1 + 42}{2} = \frac{43}{2} = 21.5 \quad (1, 0.5)$$

$$5 \text{ منبری: } r^4 = 42 \Rightarrow r = \sqrt[4]{42} \Rightarrow B = 1 \times r^5 = 1 \times r^4 \times r = 42 \times r \rightarrow r = \pm \sqrt[4]{42}$$

$$6 \text{ اگر } r = -\sqrt[4]{42} \rightarrow a_5 = 1 \times (-r)^4 = 1 \rightarrow -1 + 42 \times A = 2783$$

$$7 \text{ مجموع: } A + B = \frac{43}{2} + 1 = \frac{45}{2}$$

$$8 \text{ جمله اول: } -22$$

$$9 \text{ جمله دوم: } -\frac{98}{2} \Rightarrow d = \frac{1}{2} \quad (2)$$

$$10 \text{ جمله اول: } a_{1,1} = -22 + 1 \times \frac{1}{2} = -21.5$$

$$11 \text{ منبری: } a_1 = 121, a_n = 121 \times q^V = 1 \Rightarrow q^V = \frac{1}{121} \Rightarrow q = \frac{1}{11}$$

$$12 \text{ اول: } a + 2d, a + 4d, a + 11d \quad (1, 0.5)$$

$$13 \text{ منبری: } (a + 4d)^2 = (a + 2d)(a + 11d) \Rightarrow a^2 + 12ad + 16d^2 = a^2 + 13ad + 22d^2$$

$$14 \text{ } 2ad + 16d^2 = 13ad + 22d^2 \Rightarrow 2a + 16d = 13a + 22d \Rightarrow d = -\frac{a}{5}$$



همه ما از آن متغیر نیستیم! $\checkmark d < 0$

$$\hookrightarrow d = -\frac{a}{5} \checkmark$$

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حل: $a, a+d, a+3d, a+7d$ دقت بن وقت! (1.78) ✓

شرط مندرجہ:

$$(a+3d)^2 = (a+d)(a+7d) \Rightarrow a^2 + 6ad + 9d^2 = a^2$$

$$+ 6ad + 9d^2 - 2ad - 7d^2 = 0 \Rightarrow d = a$$

$$\frac{1}{2} \rightarrow a = \frac{1}{2} \quad \text{(صورت بنال)}$$

حل: $a+d = 2a = \frac{1}{2} \Rightarrow a = \frac{1}{4}, d = \frac{1}{4}$

$$q = \frac{a+3d}{a+d} = \frac{1}{2} = \frac{1}{2} \quad a_1 = \frac{1}{2}$$

$$a_1 = \frac{1}{2} \times 2^9 = 2^8 = 256$$

$$a_1 \times q^9 = \frac{1}{2} \times 2^9 = 256$$

$$a_1 = 256$$

حل: $2aq, 2aq^2, aq^3$ (1)

شرط مندرجہ: $4aq^2 = 2aq + aq^3 \Rightarrow 4q^2 = 2q + q^3$ (2)

$$\Rightarrow q(q-1)(q-2) = 0$$

$$q = 2 \quad \checkmark$$

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$$a_n = 2 + (n-1) \times 8 = 8n - 6$$

(9)

$$a_2 = 10, a_4 = 30, a_{10} = 78$$

$$(30 + c)^2 = (10 + c)(78 + c) \Rightarrow c^2 = 0 \Rightarrow c = 0$$

$$\frac{1}{128} = \frac{2}{8}$$

$$a, aq, aq^2$$

(1, 5)

$$a(1 + q + q^2) = 15$$

$$a, a+d, a+2d$$

$$(a+d)^2 = a(a+2d) \Rightarrow d^2 = ad$$

$$d = a(q-1)$$

$$a^2(q-1)^2 = 15a^2(q-1) \Rightarrow q-1 = 15 \Rightarrow q = 16$$

$$a(1 + 16 + 256) = 15 \Rightarrow a = 1, d = 15$$

حالات لزماً متساوية ختمه چين موانند عيب باشند!

$$q=1 \rightarrow 3a=15 \rightarrow a=5$$

$$aq^2 - a = d \xrightarrow{q=1} \frac{15}{1} - \frac{15}{1} = 0 \rightarrow d=0$$

$$a_2 - a_1 = d \rightarrow \frac{5}{k} - 2 = -\frac{1}{k} \rightarrow d = -\frac{1}{k}$$

$$a_n = 2 + (n-1) \cdot \left(-\frac{1}{k}\right) \rightarrow a_n = \frac{2-n}{k} \rightarrow a_n = -\frac{n}{k} + \frac{2}{k}$$

$$\sum a_k = \frac{5}{k} \quad (n=5)$$

$$\left\{ \begin{array}{l} a_1 = \frac{1}{k} \quad (n=1) \\ a_{13} = -1 \quad (n=13) \end{array} \right.$$

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$$\left\{ \begin{array}{l} \left(\frac{2}{k} + x\right)(-1+x) = \left(\frac{1}{k} + x\right)^2 \\ -\frac{2}{k} + \frac{x}{k} + x^2 = x^2 + \frac{1}{k}x + \frac{1}{k^2} \\ \frac{x}{k} = -\frac{21}{14} \rightarrow x = -\frac{21}{k} = \frac{5}{14} \end{array} \right.$$

حاصل دنباله $\rightarrow (-4, -5, -4, 25) \rightarrow q = \frac{a_2}{a_1} = \frac{-5}{-4} = \frac{5}{4}$