

نام و نام خانوادگی طاہرہ کبریٰ پاسخنامہ تشریحی تکلیف شماره ۱۴ کلاس دہم ۱۳

$$a_n = \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \dots \quad q = \frac{1}{2} \quad a_n = \frac{1}{2} \times \left(\frac{1}{2}\right)^{n-1} = \frac{1}{2^n}$$

$$a_{10} = \frac{1}{2} \times \left(\frac{1}{2}\right)^9 = \frac{1}{2^{10}} = \frac{1}{1024}$$

$$a_7 \times a_9 = a_1 \times a_{11} \rightarrow a_7 = a_9 = 32$$

$$\frac{a_{10}}{a_{12}} = \frac{a_8 \times \left(\frac{1}{2}\right)^2}{a_8 \times \left(\frac{1}{2}\right)^4} = \frac{1}{2^2} = \frac{1}{4}$$

$$a_{10} = \frac{1}{2^{10}} \quad a_{12} = \frac{1}{2^{12}} \quad \sqrt{\frac{1}{2^{10}} \times \frac{1}{2^{12}}} = \frac{1}{2^6} = \frac{1}{64}$$

$$2^{n-2} = 128 \Rightarrow 2^{n-2} = 2^7 \Rightarrow n = 9$$

دسویں جملہ

$$a_5 = 12, a_8 = 94 \quad \frac{a_8}{a_5} = q^3 = \frac{94}{12} \rightarrow q^3 = \frac{47}{6} \rightarrow q = \sqrt[3]{\frac{47}{6}}$$

$$a_{10} \rightarrow a_5 \times q^5 \rightarrow 3 \times 2^5 = a_{10}$$

$$a_{10} = a_1 \times q^9 \rightarrow a_{10} = 94 \times \left(\frac{47}{6}\right)^3 = 312$$

$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 243$$

$$a_3 = 243 \rightarrow a_3 = 3 = \text{الف}$$

$$1 + 5 = 2 + 4 \rightarrow a_1 \times a_5 = a_2 \times a_4 \rightarrow a_1 \times a_5 = 4 = \text{ب}$$

$$r^b, r^{\sqrt{r}}, r^a, \dots \rightarrow r^a \times r^b = r^{\sqrt{r}} \rightarrow r^{a+b} = r^{\frac{a}{r}} \rightarrow a+b = \frac{a}{r}$$

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

$$\frac{a+b}{r} = \left(\frac{a}{r}\right)^2 \rightarrow \frac{a+b}{r} = \frac{a}{r}$$

$$a+b = a \rightarrow a+b = 2a$$

$$a_n = 1-n, a_n = n, a_{n+1} = n+1$$

$$a_n \times a_{n+1} = a_n^2 \rightarrow (1-n)(1+n) = n^2$$

$$1-n^2 = n^2 \rightarrow \frac{1}{n^2} = \frac{1}{n^2} \rightarrow n^2 = \frac{1}{n^2}$$

$$n = -\sqrt{\frac{1}{n^2}}$$

$$n = +\sqrt{\frac{1}{n^2}}$$

اگر $n = -\sqrt{\frac{1}{n^2}}$ باشد q متناہد مرئودہ عیندآبد متبلاست

$$1 + \frac{1}{n^2} = q^2 \rightarrow \times$$

$$a_1(1+q+\dots+q^{n-1}) = 21 \rightarrow a_1(1+q+\dots+q^{n-1}) = 21 \rightarrow a_1 = 21$$

$$a_1 + a_2 = 21 \quad a_2 + a_3 = 12 \quad a_1 < a_2 < a_3 < a_4 < a_5$$

$$\frac{a_1 + a_2}{a_1 + a_2 + a_3} = \frac{21}{21+12} = \frac{21}{33} = \frac{7}{11}$$

$$\frac{a_1 + a_2}{a_1 + a_2 + a_3} = \frac{1+q}{1+q+q^2} = \frac{7}{11} \rightarrow 11(1+q) = 7(1+q+q^2)$$

$$11 + 11q = 7 + 7q + 7q^2 \rightarrow 4q - 7q^2 = -4 \rightarrow 4q^2 - 4q + 4 = 0 \rightarrow \Delta = 16 - 64 = -48$$

$$q = \frac{10 \pm 1}{4} \rightarrow q = \frac{11}{4}$$

$$a_1 + a_2 + a_3 = 12 \quad a_1 + a_2 + a_3 = 21$$

$$a_1 \times a_2 = 9 \rightarrow a_1 = 3, a_2 = 3$$

$$a_1 + a_2 = 10 \rightarrow a_1 = 1, a_2 = 9$$

$$a_1 = 1, a_2 = 9, a_3 = 1$$

$$a_1 = 9, a_2 = 1, a_3 = 1$$

$$a_n = 2, 4, 8, \dots \rightarrow S_{10} = 2 \times \frac{2^{10} - 1}{2 - 1} = 2^{10} - 2 = 1022$$

$$P_{10} = (a_1 \times a_2 \times \dots \times a_{10})^{\frac{1}{10}} = (2 \times 4 \times 8 \times \dots \times 2^{10})^{\frac{1}{10}} = 2^{\frac{55}{10}} = 2^{5.5} = 45.25$$

$$a, aq, aq^2, aq^3, \dots$$

$$a - aq = a(1-q) \quad aq - aq^2 = aq(1-q) \quad aq^2 - aq^3 = aq^2(1-q)$$

$$a_n = a(q-1) \times q^{n-1}$$

$$S_n = a_1 + a_2 + a_3 + \dots + a_n \Rightarrow S_n = a_n + a_{n-1} + a_{n-2} + \dots + a_1$$

$$S_n + S_n = (a_1 + a_n) + (a_2 + a_{n-1}) + (a_3 + a_{n-2}) + \dots \rightarrow n(a_1 + a_n) = 2S_n$$

$$S_n = \frac{n(a_1 + a_n)}{2} = \frac{n(a + aq^n)}{2}$$

$$S_n - qS_n = a - aq^n \rightarrow S_n(1-q) = a(1-q^n) \rightarrow S_n = \frac{a(1-q^n)}{1-q}$$