

سوال اول

$$a_n = \frac{1}{n} \rightarrow a_{n+1} = \frac{1}{n+1} \rightarrow a_n - a_{n+1} = \frac{1}{n} - \frac{1}{n+1} = \frac{1}{n(n+1)}$$

سوال دوم

$$q_n = \frac{1}{n} \rightarrow q_{n+1} = \frac{1}{n+1} \rightarrow q_n - q_{n+1} = \frac{1}{n} - \frac{1}{n+1} = \frac{1}{n(n+1)}$$

سوال سوم

$$b^2 = a^2 \rightarrow b^2 = a^2 \times q^4 \rightarrow \sqrt{b^2} = \sqrt{a^2 \times q^4} = a \times q^2$$

سوال چهارم

$$111 = \frac{1}{1} \times q^{n-1} \rightarrow 104 = q^{n-1} \rightarrow q^{n-1} = 104 \rightarrow n-1 = \log_q 104 \rightarrow n = \log_q 104 + 1$$

سوال پنجم

$$a_2 = 12 \rightarrow \frac{a_2}{a_1} = q \rightarrow \frac{12}{a_1} = q \rightarrow a_1 = \frac{12}{q} \rightarrow a_1 = 12 \times q^{-1}$$

سوال ششم

$$a_1 = aq^4 \rightarrow a_1 = \frac{1}{q^4} \times q^4 = 1 \rightarrow a_1 = 1 \rightarrow a_2 = aq = q \rightarrow a_3 = aq^2 = q^2 \rightarrow a_4 = aq^3 = q^3 \rightarrow a_5 = aq^4 = q^4$$

سوال هفتم

$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 125 \rightarrow (a_1)^5 = 125 \rightarrow a_1 = \sqrt[5]{125} = 5$$

سوال هشتم

$$(\sqrt[3]{r})^2 = r^{\frac{2}{3}} \rightarrow b^2 = a^2 \rightarrow b = a \rightarrow a^2 = r^{\frac{2}{3}} \rightarrow a = \sqrt[3]{r}$$

سوال نهم

$$a_1, a_2, a_3, a_4 \rightarrow b^2 = a^2 \rightarrow a^2 = (a_1 + a_2 + a_3 + a_4)^2$$

سوال دهم

$$x = \frac{a_1 + a_2 + a_3 + a_4}{4} = \frac{1}{4} (a_1 + a_2 + a_3 + a_4)$$

سوال یازدهم

$$a_1, a_2, a_3, a_4 \rightarrow a_1 \times a_2 \times a_3 \times a_4 = 125 \rightarrow a_1 \times a_2 \times a_3 \times a_4 = 5^3$$

سوال چهاردهم

$$81 = a^4 \rightarrow a = \sqrt[4]{81} = 3$$

Aman