

$$\underbrace{5, 9, 13, 17}_{\text{سوال 1}}$$

$$f_{n+1} \quad (\text{الف})$$

$$4 \times 10 + 1 = 41 \quad (\text{ب})$$

$$\underbrace{4, 10, 14, 18}_{\text{سوال 2}}$$

$$\Delta \frac{1}{\cancel{12}} (1 \times 4 + 9 \times 4) = \Delta \times 41, 24. \quad (\text{الف})$$

$$4 \times 1 = 4$$

$$t_{12}, t_{13}, t_{14}, t_{15} = 2t_{11} = t_{11} = t_1 + 60d = 4 + \frac{4 \times 4}{24} = 44$$

$$2 \times 44 = 88$$

$$(d) \quad (2) \quad (3) \quad (\text{سوال 3})$$

$$\frac{1+\sqrt{3}}{1-\sqrt{3}} \quad 2 \quad \frac{3-\sqrt{3}}{1-\sqrt{3}} \quad (23) \quad (24) \quad (25)$$

$$d^x, 3 \times 2d^x, d^y \rightarrow 2(3 \times 2d^x) = d^{2x} + d^y \quad (\text{سوال 4})$$

$$x, y, z \Rightarrow x = n + y$$

$$2n-4, 2n-1, 4n, \quad (\text{سوال 5})$$

$$4n-2 = 4n+2n-4 = 4, -1, 3, \textcircled{\wedge}$$

$$4n-2 = 1n-4$$

$$2 = 4n$$

$$\frac{1}{2} = n$$

$$(\text{سوال 6})$$

$$\star \underbrace{3 \times 2 \times 1}_{\text{3!}} \times \underbrace{2 \times 1}_{\text{2!}} \times \underbrace{1}_{\text{1!}} = 3! \times 2! \times 1! = 12$$

$$\star \leq 2n+1 = 5n \leq 20 \Rightarrow 41$$

$$0 = 2n-1 \Rightarrow n \leq 10 = 29$$

$$\text{Arman} \rightarrow 4n-1 < 41 \Rightarrow 4n < 42 \quad n < 11$$

سوال ۷

$$\begin{aligned} -x(a_1 + a_2 + a_3) &= 21 \\ \frac{a_1 + a_2 + a_3}{a_1 - a_2} &= 11 \\ a_1 - a_2 &= 11 \\ a_1 &= 11 \end{aligned}$$

$$\begin{aligned} a_1 - a_2 + a_1 &= 2a_1 \\ a_1 + a_1 &= \frac{2a_1}{a_1} = 2 \end{aligned}$$

سوال ۸

$$\begin{aligned} a + a + d + a + d &= 3a + 2d = 14 \\ a + 3d + a + 4d &= 2a + 7d = 24 \end{aligned}$$

$$\begin{aligned} 4a + 4d &= 14 \\ -4a - 4d &= -9 \\ \hline 8d &= 5 \\ d &= \frac{5}{8} \end{aligned}$$

$$\begin{aligned} 3a + 2 \times \frac{5}{8} &= 14 \\ 3a &= 14 - \frac{5}{4} \\ a &= \frac{10}{3} \end{aligned}$$

$$\frac{10}{3} + 10 \times \frac{5}{8} = \frac{100}{8} + \frac{10}{3} = \frac{10}{3} + \frac{100}{8} = \frac{10}{3} + \frac{25}{2} = \frac{20}{6} + \frac{75}{6} = \frac{95}{6}$$

سوال ۹

$$\begin{aligned} S_9 &= 9S_5 \Rightarrow a_1 + a_2 + a_3 + a_4 + a_5 + a_6 + a_7 + a_8 + a_9 = 9(a_1 + a_2 + a_3 + a_4 + a_5) \\ \Rightarrow 9a_5 &= 2Var \Rightarrow a_5 = \frac{2}{9}Var \end{aligned}$$

$$\begin{aligned} a + 4d &= 3a + 2d \Rightarrow a = \frac{d}{2} \\ \frac{a + 19d}{a + 4d} &= \frac{\frac{a + 19d}{2}}{\frac{d + 19d}{2}} = \frac{a + 19d}{d + 19d} \end{aligned}$$

$$a_1 = 11, a_n = 3a \Rightarrow d_1 = \frac{3a - 11}{4} = 4$$

سوال ۱۰

$$\begin{aligned} a_1 &= a + 3d = 11 + 12 = 23, b_1 = 32, b_1 = 32 \Rightarrow d' = \frac{32 - 23}{3} = 3 \end{aligned}$$

$$b_n = 32, 35, 38, 41, 44, 47$$