

$$t_n = 5, 9, 13, 17$$

الف) $4n+1$

ب) $4(9)+1=41$

۱

$$t_n = 1 + \sqrt{3}, 2, 3 - \sqrt{3}$$

$$t_{23} = 23 - 23\sqrt{3} + 2\sqrt{3} = 23 - 21\sqrt{3}$$

$$t_{25} = 25 - 25\sqrt{3} + 2\sqrt{3} = 25 - 23\sqrt{3}$$

جواب سوال = $t_n = n(1 - \sqrt{3}) + 2\sqrt{3}$

۲

$$t_{25} - t_{23} = 2 - 2\sqrt{3}$$

جواب سوال ۳

الف) $S_n = \frac{n}{2}(2a_1 + (n-1)d) \Rightarrow \frac{48}{2}(2 + (4-1)4) = 144$
 $48 \times 48 = 240$

۳

$t_{29} = t_1 + 28d = 7 + 28(4) = 119$

$t_{29} = 119 \Rightarrow 118 + 122 + 126 + 130 = 496$

جواب سوال ۲

$$2x - 4 = \frac{8x - 1}{2} \Rightarrow 4x - 8 = 8x - 1 \Rightarrow -4x = 7 \Rightarrow x = -\frac{7}{4}$$

$2x - 4, 4x - 1, 2x$

۴

$$-\frac{11}{4}, -\frac{30}{4}, -\frac{42}{4} \Rightarrow t_f = -\frac{54}{4}$$

جواب سوال ۵

$$3 \times 5^x - 5^x = 5^y - 3 \times 5^x \Rightarrow 3 \times 5^x + 3 \times 5^x - 5^x = 5^y$$

$$2 - x = y - 2$$

$$2 \times 5^x - 5^x = 5^y$$

$$5 \times 5^x = 5^y$$

$$2x + 1 = y$$

$$y = 2x + 1$$

$$y = x + 4 \Rightarrow x = 1$$

$$y = 3$$

$$xy = 3$$

$$2x + 1 = y$$

۵

جواب سوال ۴

$$a_n = v_{n+1} \Rightarrow \omega, 11, 1v, 2w, 3q, 4a, 5f \} \Rightarrow \text{مستقیم } V$$

$$b_n = w_{n-1} \Rightarrow \omega, 11, 1v, 2w, 3q, 4a, 5f \}$$

۶

$$t_1 + t_2 + t_3 = 21 \Rightarrow t_1 + (t_1 + d) + (t_1 + 2d) = 21 \Rightarrow 3t_1 + 3d = 21 \Rightarrow t_1 + d = 7$$

$$t_1 + t_2 + t_3 = 10\omega \Rightarrow t_1 + (t_1 + 2d) + (t_1 + 4d) = 10\omega \Rightarrow 3t_1 + 6d = 10\omega \Rightarrow t_1 + 2d = \frac{10}{3}\omega$$

$$(7 - d) + 2d = \frac{10}{3}\omega \Rightarrow 7 + d = \frac{10}{3}\omega \Rightarrow d = \frac{10}{3}\omega - 7 \Rightarrow t_1 = 7 - \frac{10}{3}\omega = -\frac{10}{3}\omega + 7$$

$$= -\frac{10}{3}\omega + 7, 1v, 2w, 3q, 4a, 5f \Rightarrow \frac{10}{3}\omega - 7 = 7 \Rightarrow \frac{10}{3}\omega = 14 \Rightarrow \omega = \frac{14 \times 3}{10} = \frac{42}{5} = 8.4$$

$$t_1 + t_2 + t_3 = 10 \xrightarrow{\omega} 1v, 2w, 3q, 4a, 5f = 10 \Rightarrow t_2 + t_3 = 10 \Rightarrow 11 + 15 = 26$$

$$1v, 2w, 3q, 4a, 5f \Rightarrow w_{n-1} \Rightarrow w(10) - 1 = 99$$

۸

$$s_n = \frac{n}{p}, s_n = \frac{n}{p} (a_1 + a_n) \Rightarrow \begin{cases} s_4 = \frac{4}{p} (a_1 + a_4) \\ s_3 = \frac{3}{p} (a_1 + a_3) \end{cases} \Rightarrow \frac{4}{p} (a_1 + a_4) = \frac{3}{p} (a_1 + a_3)$$

$$\frac{4a_1 + 4a_4}{4p} = \frac{3a_1 + 3a_3}{3p} \Rightarrow \frac{4a_1 + 4a_4}{4} = \frac{3a_1 + 3a_3}{3} \Rightarrow 4a_1 + 4a_4 = 3a_1 + 3a_3 \Rightarrow a_1 + 4a_4 = 3a_3$$

$$4a_1 + 4a_4 = 3a_1 + 3a_3 \Rightarrow a_1 + 4a_4 = 3a_3 \Rightarrow a_1 = 3a_3 - 4a_4$$

$$4a_1 + 4a_4 = 3a_1 + 3a_3 \Rightarrow a_1 + 4a_4 = 3a_3 \Rightarrow a_1 = 3a_3 - 4a_4$$

$$t_1 = 11 \Rightarrow \frac{10 - 11}{-1} = \frac{14}{-1} = -14 \Rightarrow \text{مستقیم} = f_{n+1} + v \Rightarrow \text{مستقیم} = 2w$$

$$3a_1 + 4a_4 = 3a_3 \Rightarrow 3a_1 + 4a_4 = 3a_3 \Rightarrow a_1 = \frac{3a_3 - 4a_4}{3}$$

۱۰

مستقیم و ۲۳ است