

کلاس : دهم دفتر ۲

نام و نام خانوادگی : آلا و ساره بیرن ۱۹ یازدهم تشریحی تلفظ شماره : ۱۳

$$a_1 = 40 \quad a_4 = 61 \rightarrow a_4 = a + 3d \rightarrow 61 = 40 + 3d \rightarrow 21 = 3d \rightarrow d = 7$$

$$a_n = a + (n-1)d \rightarrow 201 = 40 + (n-1)7 \rightarrow 201 = 40 + 7n - 7 \rightarrow 175 = 7n \rightarrow n = 25$$

$$101 + (n-1)7 = 997 \rightarrow 7n - 7 = 896 \rightarrow 7n = 903$$

$$101, 115, 122, \dots \quad a_n = 7n + 101$$

$$100 \leq 7n + 101 < 1000 \quad n = 129$$

اولین جمله = 997
اولین جمله = 101

$$-1 \leq 7n < 899 \rightarrow -\frac{1}{7} \leq n < \frac{899}{7}$$

$$0 \leq n < 128, 4 \rightarrow 128$$

$$a_{n+1} + a_{n+2} + a_{n+3} = -6n + 12$$

$$a_{11} + a_{11} =$$

$$a + nd + a + (n+1)d + a + (n+2)d = -6n + 12 \rightarrow 3a + 3nd + 3d = -6n + 12$$

$$3d = -6 \rightarrow d = -2 \quad 3a + 3d = 12 \xrightarrow{d=-2} 3a - 6 = 12 \rightarrow 3a = 18 \rightarrow a = 6$$

$$(a + 4d) + (a + 5d) = 6 + 4(-2) + 6 + 5(-2) = -14$$

$$r^x - 1, r^{x+1}, r^x - r$$

$$d = \frac{a_m - a_n}{m - n} \rightarrow d_1 = \frac{r^{x+1} - r^x + 1}{1 - r}$$

$$d_r = \frac{r^x - r - r^{x+1}}{1 - r - r}$$

$$d_1 = d_r \rightarrow \frac{r^{x+1} - r^x + 1}{1 - r} = \frac{r^x - r - r^{x+1}}{1 - r - r} \rightarrow r^{x+1} - r^x + 1 = r^x - r - r^{x+1} \rightarrow r^{x+1} + r^{x+1} - r^x - r^x + 1 + r = 0 \rightarrow 2r^{x+1} - 2r^x + 1 + r = 0$$

$$r^x \cdot r + r = r^x \cdot r \rightarrow 2r^x + r = r^x \cdot r \rightarrow 2 + r = r^x \rightarrow x = 2$$

$$a + rd = r^2 - 1 \rightarrow a + rd = r$$

$$a + rd = r^2 + 1 \rightarrow a + rd = 1$$

$$a + rd = r \rightarrow a + r = r \rightarrow a = 1$$

$$3 + 1 + 1 = 5$$

$$a_{12} - a_{10} = 2 \rightarrow a + 11d - a - 9d = 2 \rightarrow 2d = 2 \rightarrow d = 1$$

$$a_{12} + a_{10} = 2a \rightarrow a + 11d + a + 9d = 2a \rightarrow 2a + 20d = 2a \rightarrow 2a + 20 = 2a \rightarrow 2a = 20 \rightarrow a = 10$$

$$a_{21} = a + 20d \rightarrow -12, 5 + 20 \times 1, 5 = 37, 5$$

$$(a_1 + a_2 + a_3 + a_4 + a_5) = \frac{1}{5} (a_5 + a_4 + a_3 + a_2 + a_1) \rightarrow (5a + 10d) = \frac{5a}{5} + \frac{10d}{5}$$

$$15a + 30d = 5a + 10d \rightarrow 10a + 20d = 5a + 10d \rightarrow 5a = -10d \rightarrow a = -2d$$

$$\frac{a_2}{a} = \frac{a + d}{a} = \frac{\frac{1}{2}d + d}{\frac{1}{2}d} = 3$$

$$\frac{a_2}{a} = \frac{a + d}{a} = \frac{\frac{1}{2}d + d}{\frac{1}{2}d} = 3$$

$$t_n = (t_n - r_0) + 1 \rightarrow r_0 = 1 \rightarrow d = 5$$

$$t_5 = a + 4d \rightarrow a + 20$$

$$t_4 = a + 3d \rightarrow a + 15$$

$$t_3 = a + 2d \rightarrow a + 10$$

$$t_2 = a + d \rightarrow a + 5$$

$$\frac{t_5 - t_2}{t_4 - t_3} = \frac{20 - 10}{15 - 10} = \frac{10}{5} = 2$$

$$t_5 - t_2 = (t_5 - t_2)(t_5 + t_2) \rightarrow$$

$$(a + 20 - a - 10)(a + 20 + a + 10) =$$

$$10(2a + 30) =$$

$$20a + 300$$

$$d = \frac{b-a}{n+1} \rightarrow d = \frac{2+\sqrt{3}-2(1-2\sqrt{3})}{13} = \frac{2+\sqrt{3}-2+4\sqrt{3}}{13} = \frac{5\sqrt{3}}{13} = \boxed{\sqrt{3}} \text{ جواب}$$

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$$d = \frac{b-a}{n+1} \quad a_n = a + (n-1)d \rightarrow 11 = 2 + nd \rightarrow 9 = nd$$

$$32 = 2 + (n-2)d \rightarrow 30 = (n-2)d \rightarrow d = \frac{30}{n-2}$$

$$9 = n \left(\frac{30}{n-2} \right)$$

$$9(n-2) = 30n$$

$$9n - 18 = 30n$$

$$21n = 18 \rightarrow \boxed{n=3} \text{ عددی سوم}$$

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$$a_n + a_{n+2} = a_3 + a_{10} \rightarrow (a + (n+1)d) + (a + (n+3)d) = a + 2d + a + 9d$$

$$2a + (2n+4)d = 2a + 11d \rightarrow 2nd = 7d \rightarrow 2n = 7 \rightarrow n = 3.5$$

$$a_n = \frac{3a_n}{3} \rightarrow a_n = 3a_3 \rightarrow a + nd = 3(a + 2d) \rightarrow a + nd = 3a + 6d \rightarrow 2a + 2d = 0$$

$$2(a+d) = 0 \rightarrow a+d = 0 \rightarrow a = -d$$

$$0 = -d + nd - d \rightarrow 0 = -2d + nd \rightarrow 2d = nd \rightarrow \boxed{2=n} \text{ جواب}$$

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