

نام خانوادگی: فاطمه زهرا جمال زاده تکلیف شماره: ۱۳ کلاس: دهم ریاضت A

$$a_1 = 40 \quad d = \frac{a_m - a_n}{m - n} \Rightarrow d = \frac{41 - 40}{4 - 1} = \frac{1}{3} = \boxed{\frac{1}{3}} \quad (1)$$

$$a_4 = 41$$

$$a_n = 40 + (n-1) \cdot \frac{1}{3}$$

$$40 = 40 + (n-1) \cdot \frac{1}{3}$$

$$0 = (n-1) \cdot \frac{1}{3}$$

$$0 = n-1 \Rightarrow \boxed{n=1}$$

✓

$$100 \leq 40 + (n-1) \cdot \frac{1}{3} \leq 999$$

$$99 \leq 40 + (n-1) \cdot \frac{1}{3} \leq 994$$

$$\Rightarrow \frac{101}{1}, \frac{101}{1}, \dots, \frac{994}{1} \rightarrow 129 - 1 + 1 = \boxed{129}$$

$$994 = 40 + (n-1) \cdot \frac{1}{3}$$

$$954 = (n-1) \cdot \frac{1}{3} \Rightarrow n-1 = 2862 \Rightarrow n = 2863$$

✓

$$a_{n+1} \rightarrow a_n = a_1 + nd$$

$$a_{n+2} \rightarrow a_n = a_1 + (n+1)d$$

$$a_{n+3} \rightarrow a_n = a_1 + (n+2)d$$

$$3a_1 + (3n+3)d = -9n + 12$$

$$3a_1 + 3dn + 3d = -9n + 12$$

$$3dn = -9n$$

$$3d = -9$$

$$\boxed{d = -3}$$

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$$\text{if } d = -2 \rightarrow 2a_1 = -4n + 4 = -4n + 12$$

$$2a_1 = 12$$

$$\boxed{a_1 = 6}$$

$$a_n = a_1 + (n-1)d$$

$$a_n = 6 + (n-1)(-2) \rightarrow a_{11} = 6 - 12 = -6$$

$$a_{14} = 6 - 3 \cdot 2 = -6$$

$$a_{11} + a_{14} = -6 - 6 = -12$$

$$a_r = r^m - 1$$

$$a_n = r^{n+1}$$

$$a_{1r} = r^{2m} - r$$

$$a_r = r^r - 1 = r$$

$$a_n = r^r = 1$$

$$a_{1r} = r^r - r = 1r$$

$$a_r + a_n + a_{1r} = r + 1 + 1r = 2r$$

$$d = \frac{a_m - a_n}{m - n}$$

$$d = \frac{r^{n+1} - r^n - 1}{n - 1} = \frac{r^{2m} - r - r^{n+1}}{1r - 1}$$

$$\begin{aligned} r^{n+1} - r^n - 1 &= r^n - r - r^{n+1} \\ r^{n+1} - r^n - r^{2m} + r^{2m+1} &= -r \\ r^{n+1} - r^n - r^{2m} &= -r \end{aligned}$$

$$r^{2m}(r^{2r} - 1 - r^n) = -r$$

$$r \times r^{2m} - r^{2m} = -r$$

این به جای ۲۰۰۰ بگذارم نتایج برقرار می شود

$$r \times r^2 - r^2 = -r$$

$$1r - 1r \neq -r$$

$$a_{1r} - a_{10} = \omega$$

$$\rightarrow d = \frac{a_m - a_n}{m - n} = \frac{a_{1r} - a_{10}}{1r - 10} = \boxed{\frac{\omega}{r}}$$

$$a_{10} + a_{1r} = 2\omega$$

$$\rightarrow a_1 + 9d + a_1 + 11d = 2\omega$$

$$a_{11} = ?$$

$$2a_1 + 20d = 2\omega$$

$$2a_1 + 20\left(\frac{\omega}{r}\right) = 2\omega$$

$$2a_1 = -2\omega$$

$$a_n = a_1 + (n-1)d$$

Hashtag $a_n = -\frac{2\omega}{r} + (n-1)\frac{\omega}{r}$

$$\boxed{a_1 = -\frac{2\omega}{r}}$$

HASHTAG $a_{11} = -\frac{2\omega}{r} + 10\left(\frac{\omega}{r}\right) \Rightarrow \boxed{a_{11} = 8\omega/r}$

$$S_a = \frac{\omega}{r} (ra_1 + \varepsilon d) = \frac{(10a_1 + r_0 d)}{r} \quad (4)$$

$$S_{10} - S_a = \omega (ra_1 + qd) - \frac{\omega}{r} (ra_1 + \varepsilon d)$$

$$\rightarrow 10a_1 + \varepsilon \omega d - \omega a_1 + 10d = \omega a_1 + r \omega d$$

$$\frac{S_a}{S_{10} - S_a} = \frac{\frac{10a_1 + r_0 d}{r}}{\omega a_1 + r \omega d} = \frac{10a_1 + r_0 d}{10a_1 + r_0 d} = \frac{1}{r}$$

$$r_0 a_1 + r_0 d = 10a_1 + r_0 d$$

$$r_0 a_1 - 10a_1 = 0$$

$$10(r_0 a_1 - d) = 0$$

$$\Rightarrow r_0 a_1 - d = 0$$

$$a_1 = \frac{d}{r}$$

$$\frac{a_r - 1}{a_1} \rightarrow \frac{a_1 + d}{a_1} = ?$$

$$\frac{a_1 = \frac{d}{r}}{\frac{r_0 d}{r} - \frac{d}{r}} = r \text{ ✓}$$

$$\left. \begin{aligned} t_n - t_{n-r} &= 10 \\ t_n - t_{n-r} &= r_0 d \end{aligned} \right\} \Rightarrow r_0 d = 10$$

$$\boxed{d = 10}$$

$$t_q^r - t_a^r \xrightarrow{\text{Sujat}} (t_q - t_a) (t_q + t_a) = r_0 (r + v)$$

$$\xrightarrow{d=10} \varepsilon d \quad r \times \omega = r_0$$

$$\frac{t_q^r - t_a^r}{t_v} = \frac{r_0 (r + v)}{t_v} = \varepsilon_0 \text{ ✓}$$

$$d = \frac{b-a}{n+1} \rightarrow d = \frac{r + \sqrt{r} - r(1 - 4\sqrt{r})}{1r + 1} \quad (1)$$

$$d = \frac{r + \sqrt{r} - r + 4r\sqrt{r}}{1r + 1} = \frac{4r\sqrt{r}}{1r + 1} = \sqrt{r} \text{ ✓}$$

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$$a_1 = 2$$

$$a_{n+1} = 11$$

$$a_{2n-2} + 2 = a_{2n-1} = 22$$

$$d = \frac{a_m - a_n}{m - n} \Rightarrow d = \frac{a_{n+1} - a_1}{n+1-1} = \frac{11-2}{n}$$

$$d = \frac{a_{2n-1} - a_{n+1}}{2n-1-n-1} = \frac{22-11}{2n-2} = \frac{\frac{21}{n}}{\frac{2n-2}{n}} = \frac{21}{2n-2}$$

$$\textcircled{1} \checkmark \quad \frac{21}{n} = \frac{21}{2n-2} \rightarrow 21n = 21n - 11$$

$$11 = 2n \rightarrow \boxed{n=2}$$

$$a_n + a_{n+2} = a_2 + a_{12} \quad \text{جمع اندیس صاف برابر} \rightarrow n+n+2=20$$

$$2n+2=20$$

$$\boxed{n=9}$$

$$a_n = \frac{2a_n}{2} \Rightarrow a_n = \frac{2a_2}{2}$$

$$\textcircled{1} a_n - a_2 = \frac{2a_2}{2} - a_2 = \frac{2a_2}{2}$$

$$\textcircled{2} a_n - a_2 = a_2 + 2d - a_2 = 2d \Rightarrow 2d = 2a_2$$

$$2d = a_2$$

$$\textcircled{2} \checkmark$$

$$a_2 = a_1 + 2d$$

$$2d = a_1 + 2d \rightarrow a_1 = -d$$

$$a_n = a_1 + (n-1)d$$

$$0 = a_1 + (n-1)d \rightarrow 0 = (-d) + (n-1)d$$

$$0 = d(-1 + n-1) \xrightarrow{d \neq 0} -1 + n-1 = 0$$

$$-1 + n-1 = 0$$

$$\boxed{n=2} \leftarrow \text{نکته دوم صفر است}$$

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