

$$a_1 = 80 \Rightarrow a_8 - a_1 = 3d = 21 \Rightarrow d = 7 \Rightarrow a_n = a_1 + (n-1)d = 80 + (n-1)7$$

$$a_8 = 41$$

$$a_n = 208 = 80 + (n-1)7 \Rightarrow (n-1)7 = 128 \Rightarrow n-1 = 18 \Rightarrow n = 19$$

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$$a_n = 7n + 3$$

$$1 - 7n + 3 \leq 999 \Rightarrow 7n \leq 997 \Rightarrow 142 \leq n \leq 143$$

$$142 + 1 = 143$$

$$143 + 1 = 144$$

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$$a_{n+1} + a_{n+2} + a_{n+3} = -4n + 12 \Rightarrow 3a_1 + d(n + n+1 + n+2) = -4n + 12$$

$$3nd + 3d + 3a_1 = -4n + 12 \Rightarrow 3d = -4 \Rightarrow d = -\frac{4}{3}$$

$$-4 + 3a_1 = 12 \Rightarrow 3a_1 = 16 \Rightarrow a_1 = \frac{16}{3}$$

$$a_{10} + a_1 = 2a_1 + 2d =$$

$$12 - \frac{8}{3} = \frac{28}{3}$$

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

$$\left. \begin{array}{l} a_{1r} - a_n = \omega d \\ a_n - a_2 = \omega d \end{array} \right\} \Rightarrow a_{1r} - a_n = a_n - a_2$$

$$r^n - d - r^{n+1} - r^{n+1} + 1 = r^n + r^{n+1} - 2r^{n+1} + 1 \Rightarrow r^n + r^{n+1} - 2r^{n+1} + 1 = 0$$

$$(r^n - 1)(r^n + 1) = 0 \Rightarrow r^n = 1 \text{ or } r^n = -1$$

$$S = 3 + 11 + 19 = 33$$

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$$a_{1r} - a_{10} = 2d = 0 \Rightarrow d = 0 \Rightarrow a_1 + \frac{0}{r} = 10 \Rightarrow a_1 = \frac{10}{r}$$

$$a_{10} + a_{1r} = 20$$

$$a_{1r} = 10 \Rightarrow a_{10} = 10$$

$$a_{11} = a_1 + r \cdot d = -\frac{10}{r} + \frac{0}{r} = -\frac{10}{r} = \frac{10}{r}$$

$$a_1 + a_2 + a_3 + \dots + a_n = \frac{1}{p} (a_1 + a_2 + a_3 + \dots + a_n)$$

$$\omega a_1 + l \cdot d = \frac{1}{\mu} (\omega a_1 + n \cdot d)$$

$$a_1 + v_d = \frac{1}{2} (a_1 + v_d)$$

$$\frac{\rho}{\mu} a_1 = \frac{1}{\mu} d \Rightarrow \rho a_1 = d$$

$$\frac{a_r}{a_l} = \frac{\frac{d}{r} + d}{\frac{d}{r}} = \frac{\frac{r}{r} + d}{\frac{d}{r}} = \frac{1 + d}{\frac{d}{r}} \quad \boxed{1 + d}$$

$$\frac{E_n = E_{n-1} + \frac{h\nu}{E_n - E_{n-1}}}{E_n - E_{n-1}} = \frac{(E_n - E_{n-1}) + \frac{h\nu}{E_n - E_{n-1}}}{E_n - E_{n-1}} = \frac{E_n - E_{n-1}}{E_n - E_{n-1}} + \frac{h\nu}{(E_n - E_{n-1})^2} = 1 + \frac{h\nu}{(E_n - E_{n-1})^2}$$

$$t_E = t_1 + 10$$

$$t_d = t_r + 1\omega$$

$$t_y = t_w + 10$$

$$t_v = \cancel{t_2} + 1\omega = t_1 + 3\omega \rightarrow t_v - t_2 = 3\omega = 1\omega \Rightarrow \omega = \omega$$

$$t_q + t_\Delta = t_v + t_v$$

$$d = \frac{\text{جدید} - \text{عجیب آخر}}{f+1} = \frac{2+\sqrt{3} - 2+12\sqrt{3}}{13} = \frac{13\sqrt{3}}{13} = \boxed{\sqrt{3}}$$

$$\cancel{a_n} \text{ increments} = \text{increments} \Rightarrow a_{n+1} = 11 = a_1 + (n-1)d$$

$$d = \frac{\mu_T - \mu}{\Sigma n - 1} = \frac{\mu_0}{\Sigma n - 1} = \frac{10}{7-1}$$

$$r + (n) \times \frac{10}{r_{n-1}} = 11 \Rightarrow \frac{10}{r_{n-1}} = \frac{11-r}{1} \Rightarrow 4n-11 = 11-r \Rightarrow \boxed{n=11}$$

$$a_n + a_{n+1} = a_p + a_{1v} \Rightarrow \cancel{r}q_1 + \underbrace{(n-1+n+1)}_{r_{n+1}}d = \cancel{r}q_1 + 1d$$

$$a_n = r a_{\frac{n}{r}}$$

$$r_n + r = 1 \Rightarrow n = 1$$

$$a_\Lambda = \mu a_\Sigma$$

$$a_1 + v_d = r a_1 + q_d \Rightarrow v_d = -r a_1 \Rightarrow d = -a_1$$

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

$$a_1 \left(\frac{1-n+1}{r-n} \right) = 0 \Rightarrow r-n = 0$$

$n=r$