

۲۰ آفرین

$$a_1 = f_0$$

$$a_1 = f_0 \rightarrow a_1 = a_1 + 3d \rightarrow 3d = 1 \rightarrow d = \frac{1}{3}$$

$$a_n = f_0 + (n-1)d$$

$$a_n = f_0 + 3n - 3 \rightarrow 101 = 3n + 1 \rightarrow 100 = 3n \rightarrow n = \frac{100}{3} \rightarrow n = 33 \frac{1}{3}$$

$$a_n = 3n + 1$$

$$a = \frac{1}{3}$$

$$b = \frac{100}{3}$$

$$101$$

$$\frac{100}{3} \rightarrow \frac{100}{3} = 33 \frac{1}{3}$$

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$$99V - 101 + 1 = 129 \rightarrow 99V = 129 \rightarrow V = \frac{129}{99} = \frac{43}{33}$$

$$a_n = an + b \Rightarrow -2n + 1$$

$$a(n+1) + b + a(n+2) + b + a(n+3) + b = -4n + 12$$

$$a(n+1) + b + a(n+2) + b + a(n+3) + b = -4n + 12$$

$$3an + 4a + 3b = -4n + 12$$

$$3a = -4 \rightarrow a = -\frac{4}{3} \rightarrow 4(-\frac{4}{3}) + 3b = 12 \rightarrow 3b = 12 + \frac{16}{3} \rightarrow b = \frac{16}{3} + 4 = \frac{28}{3}$$

$$a_{17} = (-2 \times 17) + 1 = -34$$

$$a_n = (-2 \times 1) + 1 = -1$$

$$a_{17} + a_1 = -34 + (-1) = -35$$

$$r^n = y \rightarrow r^{n+1} - r^n + 1 = r^n - r - r^{n+1} = 0$$

$$ry - y + 1 = y^2 - r - ry$$

$$y^2 - ry - 1 = 0 \rightarrow (y - r)(y + 1) \rightarrow y \rightarrow r$$

$$r^n - r + r^{n+1} + r^n - 1 = y^2 - r + ry + y - 1 = y^2 - r + ry = 14 - r + 12 = 26$$

$$t_{12} - t_{10} = 2 \rightarrow t_{10} = 10$$

$$t_{12} + t_{10} = 22$$

$$2t_{11} = 32 \rightarrow t_{11} = 16$$

$$2d = 16 - 10 \rightarrow 2d = 6 \rightarrow d = 3$$

$$t_{11} = t_{12} + 9d = 12 + 9 \times 3 = 39$$

$$t_{11} = \frac{30}{2} + \frac{9d}{2} = \frac{30 + 27}{2} = \frac{57}{2} = 28 \frac{1}{2}$$

$$\frac{d}{r} (a_1 + a_d) = \frac{1}{r} \times \frac{d}{r} (a_9 + a_{10})$$

$$\omega a_1 + 10d = \frac{\omega}{r} a_1 + \frac{10}{r} d \Rightarrow \frac{10}{r} a_1 = \frac{\omega}{r} d \rightarrow a_1 = \frac{\omega}{10} d \times \frac{r}{10} = \frac{10}{100} d$$

$$\frac{d}{r} (a_1 + a_d) = \frac{1}{r} \times \frac{d}{r} (a_9 + a_{10})$$

$$\omega a_1 + 10d = \frac{10}{r} a_1 + 10d \Rightarrow \frac{10}{r} a_1 = \omega a_1 \Rightarrow a_1 = \frac{\omega}{10} d$$

$$a_1 = \frac{1}{r} d$$

$$\frac{t_9 - t_0}{t_9 + t_0} = ?$$

$$t_n - t_{n-1} = 10 \rightarrow 10d = 10 \rightarrow d = 1$$

$$\frac{1}{r}$$

$$\frac{(t_9 + t_0)(t_9 - t_0)}{t_9 + t_0} \rightarrow \frac{t_0(t_9 + 10)}{t_9 + 10} \rightarrow \frac{t_0(t_9 + 10)}{t_9 + 10} = \frac{t_0}{1} = t_0$$

$$\frac{r + \sqrt{r} - r + 11\sqrt{r}}{11} = \frac{11\sqrt{r}}{11} = \sqrt{r} \rightarrow \frac{1}{r}$$

$$\frac{1}{r}$$

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

$$n = 10$$

$$a_{n+1} = 11 \rightarrow a_{n-1} - a_{n+1} = 11$$

$$d = \frac{r_0}{r_{n-1}}$$

$$t_{2n-10} = t_{n-9}$$

$$(r_n - r)d = 11$$

$$(r_n - r) \left(\frac{r_0}{r_{n-1}} \right) = 11 \rightarrow \frac{r_0(r_n - r)}{r_{n-1}} = 11$$

$$a_n + a_{n+1} = a_{n+1} + a_{n+2} \Rightarrow r_n + r_{n+1} = r_{n+1} + r_{n+2} \Rightarrow r_n = r_{n+2} \Rightarrow n = 11$$

$$a_n = r a_{n-1} \rightarrow a_1 + nd - d = r [a_1 + (n-1)d] \rightarrow a_1 + (n-1)d - r a_1 - \frac{r(n-1)}{r} d = 0$$

$$a_1 + (n-1)d - r a_1 - (n-1)d = 0$$

$$d(n-1)(1-r) = 0$$

$$1-r=0 \rightarrow r=1$$

$$a_1 = -d$$