

سوال (1)

$$a_1 = f_0 \quad a_r = 41 \quad d = \frac{a_r - a_1}{r - 1} = \frac{41 - f_0}{r} = v$$

$$a_n = f_0 + (n-1)v = vn + f_0 - v$$

$$vn + f_0 - v = f_0 \Rightarrow$$

$$vn = 1v \Rightarrow n = 1$$

سوال (2)

$$\frac{999}{r} \mid v$$

$$999 - a = 999$$

$$\frac{100}{r} \mid v$$

$$100 - r = 99 \mid v$$

لحل اول باين سوال

$$999 - 100 = 899 \mid v$$

$$\frac{899}{v} + 1 = 129$$

سوال (3)

$$a_r + a_r + a_r = -4 + 12 \Rightarrow 3a_1 + 4d = 4$$

$$a_r + a_r + a_r = 0 \Rightarrow -3a_1 + 4d = 0$$

$$a_1 = a_1 + vd = 4 + (-12) = -8$$

$$a_{12} = a_1 + 11d = 4 + (-12) = -8$$

سوال (4)

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

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

$$r(r^{x+1} - r^x + 1) = r^x(1 - r) \Rightarrow r^{x+2} - r^{x+1} + r = r^x - r^{x+1}$$

$$r^{x+1} - r^x(r^{x+1} - r^x + 1) = -1 \Rightarrow r^x(r^{x+1} - r^x + 1) = -1$$

$$r - r^2 + r^2 - 1 = -1 \Rightarrow r = 1$$

$$\frac{a_{12} - a_{10}}{12 - 10} = \frac{a}{2} = d$$

$$a_{10} + a_{12} = 2a_1 + 2d = 2a$$

$$2a_1 + 2d = 2a \Rightarrow a_1 + d = a \Rightarrow a_1 = a - d$$

$$a_{11} = a_1 + 10d = -12d + 10d = -2d = -2v$$

$$\frac{a_1 + a_2 + a_3 + a_4 + a_5}{a_6 + a_7 + a_8 + a_9 + a_{10}} = \frac{1}{r}$$

$$\frac{a_1 + 10d}{a_1 + 9d} = \frac{1}{r} \Rightarrow \frac{a_1 + 10d}{a_1 + 9d} = \frac{1}{r}$$

$$\frac{a_r}{a_1} = \frac{a_1 + d}{a_1} = \frac{a_1 + ra_1}{a_1} = r$$

$$ra_1 + 4d = a_1 + vd \Rightarrow ra_1 = d$$

سوال (5)

$$t_9 - t_5 = (t_9 - t_5)(t_9 + t_5) = rd(ra_1 + 11d) = ra_1 + 11rd$$

$$t_n = t_{n-r} + 12 \quad t_9 = t_7 + 12 \Rightarrow rd = 12 \Rightarrow d = 2$$

$$\frac{t_9 - t_5}{t_v} = \frac{f_0 a_1 + 11rd}{a_1 + 4d} = \frac{f_0(a_1 + 4d)}{a_1 + 4d} = f_0$$

(سوال 11)

$$d = \frac{r + \sqrt{r} - r(1 - 4\sqrt{r})}{1r} = \frac{\cancel{r} + \sqrt{r} - \cancel{r} + 4r\sqrt{r}}{1r} = \frac{1r\sqrt{r}}{1r} = (\sqrt{r})$$

$$d = \frac{a_n - a_m}{b_m - b_n + 1}$$

(سوال 9)

$$d = \frac{r_{n-1} - r}{r_{n-1} - r + 1} = \frac{r_0}{r_{n-1}} = \frac{10}{r_{n-1}}$$

$$d = \frac{9}{n-1} = \frac{10}{r_{n-1}} \Rightarrow 9r_{n-1} = 10(n-1) \Rightarrow r_{n-1} = \frac{10}{9}(n-1) \Rightarrow r_n = \frac{10}{9}n - \frac{10}{9} \Rightarrow n = 1$$

$$a_n + a_{n+1} = a_r + a_{14} \Rightarrow \frac{n+n+1}{r_{n+1}} = r + 14 \Rightarrow r_{n+1} = 14 \Rightarrow n = 1$$

$$\frac{a_n}{a_r} = r \Rightarrow a_1 + rd = r(a_1 + rd) \Rightarrow ra_1 = -rd \Rightarrow a_1 = -d$$

$$a_n = a_1 + (n-1)d \Rightarrow a_n = -d + (n-1)d = 0 \Rightarrow (n-1)d = d \Rightarrow n-1 = 1 \Rightarrow n = 2$$