

مسألة 1

$$a_1 = 5, \quad ar = 41 \rightarrow \frac{a_1}{a} + rd \rightarrow rd = r1 \rightarrow d = v$$

$$tn = 5 + v(n-1) \\ r \cdot n = 5 + v(n-1) \\ 141 = 5n - v \\ 146 = 5n \rightarrow n = 29.2$$

2

$$11, 1, 1, 1, \dots \rightarrow 99V \rightarrow n = \frac{99V - 1 \cdot 1}{1} + 1 = 100V$$

مسألة 2

2

مسألة 3

$$an+1 + an+r + a_{n+r} = -4n + 12$$

$$an+d + a_{n+d} + a_{n+2d} = -4n + 12 \rightarrow ran + 4d = -4n + 12$$

$$dr = 5$$

$$d = 5$$

2

$$tn = -r + r(n-1)$$

$$a_{14} = -r + r(14) \quad \left. \begin{matrix} ra = -4 \\ a_1 = -r \end{matrix} \right\} \xrightarrow{n=1} \quad \left. \begin{matrix} r_{14} = -4n \\ r_{14} = -4n \end{matrix} \right\}$$

$$a_n = -r + r(n) = 12 \rightarrow -r + r = 12$$

1

$$r_b = a + C \dots \rightarrow r(r^{n-1}) = r^n - 1 + r^n - r^n$$

$$a_{11} - a_1 = 10 \rightarrow a + 10d - a - 4d = 10 \rightarrow 6d = 10 \rightarrow d = 1.66$$

$$a_{11} + a_{10} = 20 \rightarrow a + 10d + a + 9d = 20 \rightarrow 2a + 19d = 20$$

$$tn = -12.5 + r_{10}(10) = r_{10} \cdot 10 \rightarrow tn = -12.5 + r_{10}(10)$$

$$-12.5 + 2 \cdot (10 \cdot 1.66) = 17.5$$

$$\left. \begin{matrix} a_r = \frac{r^n - 1}{r - 1} \\ d_1 = r^{n+1} \\ d_{14} = r^{14} - r \end{matrix} \right\} \quad V \cdot r = 44$$

$$a_1 + a_2 + a_3 + a_4 + a_5 = \frac{1}{r} (a_1 + a_2 + a_3 + a_4 + a_5)$$

$$a + a + d + a + rd + a + rd + a + rd = \frac{1}{r} (a + rd + a + rd + a + rd)$$

$$a + a + d = \frac{1}{r} (a + rd)$$

$$a + a + d = \frac{1}{r} (a + rd) \rightarrow \frac{a}{r} = \frac{1}{r} d$$

$$\frac{a_r}{a_1} = \frac{a + d}{a} = \frac{a + a}{r} = r \rightarrow r = d$$

$$a + rd = \frac{1}{r} a + \frac{v}{r} d \rightarrow \frac{1}{r} a = \frac{1}{r} d$$

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$$d = \frac{b-a}{n+1} \rightarrow \frac{r+\sqrt{r}-r+\sqrt{r}}{1r+1} \rightarrow \frac{2\sqrt{r}}{1r} = \frac{\sqrt{r}}{r} \quad (\text{سوال ۳})$$

$$d = \frac{rr-r}{rn-r+1} = \frac{r}{rn-r} = \frac{1}{n-1} = d$$

(سوال ۳)

$$t_{n+1} = t_1 + nd \rightarrow 11 \pm r + nd \rightarrow nd \rightarrow q \rightarrow q = n \left(\frac{1}{n-1} \right)$$

$$r = n \left(\frac{1}{n-1} \right) \rightarrow \omega n = q_{n-1} \rightarrow n = r$$

سوال ۳

$$a_n + a_{n+r} = a_r + a_{14}$$

$$n + n + r = r + 14$$

$$2n = 14 \rightarrow \boxed{n=7} \quad a_n + a_{14} = a_r + a_{14}$$

$$a_n = r a_{\frac{n}{r}} \rightarrow a_7 = r a_r$$

$$a + 7d = r a + 9d \rightarrow r a = -2d$$

$$\boxed{a = -2d}$$

$$a_n = a + d(n-1) = 0 \rightarrow -2d + dn - d = 0$$

$$\checkmark d n = 3d$$

$$n = 3 \rightarrow \boxed{n=3}$$

$$a_3 + a_1 r = a_1 + a_1$$

سوال ۴

$$r^n - 1 + r^{n+1} - r = r(r^{n+1})$$

$$r^n - r = r(r \times r^n) - r^n$$

$$r^n - r \times r^n - r = 0 \longrightarrow r^n = r$$

$$r^n - r = 0 \longrightarrow r = 1 \longrightarrow n = 2$$

جواب ۱

$$\text{حاصل} \rightarrow \frac{r^2 - 1}{r} / \frac{r^{2+1}}{r} / \frac{r(r)}{r - r} = \boxed{24}$$