

$$\{1\}, \{2, 3, 4\}, \{5, 6, 7, 8, 9\}, \{10, 11, 12, 13, 14, 15, 16\}, \{17, 18, 19, 20, 21, 22, 23, 24, 25\}$$

✓ (1)

$$1, 2, 5, 10, 17$$

$$1+2=3, 3+5=8, 8+10=18, 18+17=35$$

الکثر اعداد اول پر دست: $n^2 + 2n + 1 = n^2 + 2n + 1 = 11 - 11 + 2 + 1 = 1$

$$90 + 11 = 101, 142, 173$$

✓ (2)

$$\{1, 2, 3\}, \{4, 5, 6, 7, 8, 9, 10, 11, 12\}, \{13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25\}$$

✓ (2)

$$1, 4, 9, 16, 25$$

$$1^2, 2^2, 3^2, 4^2, 5^2$$

د 363 عدد پر عدد اول پر دست: $363 + 11 = 374, 374 + 11 = 385, 385 + 11 = 396$

✓ (2)

$$t_1 = 1, t_2 = 4, t_3 = 9, t_4 = 16, t_5 = 25$$

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✓ (3)

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$$a_1 = 1, a_2 = 4, a_3 = 9, a_4 = 16, a_5 = 25$$

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✓ (4)

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✓ (5)

Subject :

$$\left. \begin{array}{l} b_1 s a_1 \\ b_2 s a_2 \\ \vdots \\ b_n s a_n \end{array} \right\} r, k, f, d \left. \begin{array}{l} b_1 s a_1 \\ b_2 s a_2 \\ \vdots \\ b_n s a_n \end{array} \right\} r, k, f, d$$

$$4(a+d)^r = 4(a^r + r a^{r-1} d + d^r) = 4a^r + r a^{r-1} d + d^r$$

$$\Delta a(a+d) + \gamma_a(a+d) = \Delta a + \text{load} + \gamma_a + \gamma_{ad} = \Delta a + \gamma_{ad}$$

$$s) \quad 4a^2 + 16ad + 4d^2 \div 4a^2 + 16ad \quad \therefore 4a^2 + 16ad - 4d^2 \div 4 \div (a-d)(4+d)$$

$$\frac{a}{d} = \frac{a \cdot \frac{d}{d}}{d \cdot \frac{d}{d}} = \frac{a \cdot 1}{d \cdot 1} = \frac{a}{d}$$

c, b, a

-5 (✓)

$$\frac{0 + \cancel{C} + d}{f}, \quad \frac{\cancel{c} + d}{f}, \quad \frac{\cancel{C} + fdc + fd}{f}, \quad \frac{\cancel{d} + dc}{f}, \quad \frac{fdc}{f}, \quad -fd$$

$$r, \frac{C+Yd}{r}, \frac{Yc+Fd}{C}, \frac{-\frac{1}{r}d + \frac{1}{r}d}{-\frac{1}{r}d}, \frac{\frac{1}{r}}{-\frac{1}{r}} = -1, \frac{C - Fd}{-1}$$

$$\begin{array}{c} c, b, a \\ \hline x r \quad x r \end{array}$$

$$\frac{1}{22} (n$$

$$C, YCr^r, YCr^r, \frac{YCr^r + C}{r}, YCr^r, \frac{d(Yr+1)}{r}, \frac{fYr^r}{r}, Yr+1, fYr^r$$

$r^2 - 2r - 1 \rightarrow (r+1)(r-1)$

$$r^2 + 1r - 1 = 0 \rightarrow (r+1)(r-1) = 0 \rightarrow \begin{cases} r=1 \\ r=-1 \end{cases}$$

$$\frac{a_1}{a_2} = \frac{u_1^2}{a_2^2} = q = -\frac{1}{4}$$

$$\frac{ar^a}{ar^r} + \frac{ar}{a^r} = \frac{r^r + ar}{a^r a^r} \quad \frac{1}{r} \underline{61} (9)$$

$$\Rightarrow \sqrt{a^r} r^r + ar \Rightarrow r^r + ar - \sqrt{a^r} \Rightarrow -a \pm \sqrt{a^r + 4a^r} \Rightarrow \frac{-a \pm \sqrt{a^r}}{r}$$

$$\Rightarrow \textcircled{1} r \pm \frac{\sqrt{a}}{r} \Rightarrow a \Rightarrow \frac{a^r}{ar} \Rightarrow \frac{a^r}{a^r} \Rightarrow \boxed{1} \quad \checkmark$$

$$\Rightarrow \textcircled{2} r \pm \sqrt{a} \Rightarrow \frac{a^r}{ar} \Rightarrow \frac{a^r}{-ra^r} \Rightarrow \boxed{\frac{-1}{r}} \quad \checkmark$$

(Y)

$$\frac{a_F}{a_F} \Rightarrow \frac{(a_F)^r}{(a_F)^r} \Rightarrow a_F \Rightarrow q$$

$$\Rightarrow \frac{rV}{(a_F)^r} \Rightarrow a_F \Rightarrow (a_F)^r \Rightarrow rV \Rightarrow a_F \Rightarrow rV \Rightarrow q \Rightarrow \left. \begin{aligned} &\frac{1}{r} - \frac{1}{r} \Rightarrow \frac{1}{q} \\ &\frac{1}{q} \Rightarrow \frac{1}{r} \end{aligned} \right\} \quad \checkmark$$

(Y)

سوال ۳

$$\begin{cases} a_0 = 1 \\ a_3 = 2 \\ a_4 = 4 \\ a_9 = 8 \end{cases} \quad \begin{cases} a_1 = 4 \\ a_7 = 2 \\ a_{10} = 0 \end{cases}$$

$$\begin{cases} a_2 = a+1 \\ a_5 = a+1 \\ a_8 = a+2 \end{cases}$$

میانگین اول $\leftarrow a_9, a_4, a_3, a_0$
 میانگین دوم $\leftarrow a_{10}, a_7, a_1$
 میانگین سوم $\leftarrow a_8, a_5, a_2$

$$S_{10} = 1 + 4 + (a+1) + 2 + 2 + (a+1) + 4 + 0 + (a+2) + 8 = 19 \rightarrow a = -2$$

جمع جملات $a_2 + a_5 + \dots$: میانگین سوم

$$a_n = \left\lfloor \frac{n}{k+2} \right\rfloor + a \xrightarrow{n=3k+2} \left\lfloor \frac{3k+2}{k+2} \right\rfloor - 2 \rightarrow a_n = \left\lfloor \frac{2(k+2)}{k+2} + \frac{k-2}{k+2} \right\rfloor - 2$$

$$\rightarrow S_n = \left\lfloor 2 + \frac{k-2}{k+2} \right\rfloor - 2 = \frac{k-2}{k+2}$$

معادله $\left\lfloor \frac{k-2}{k+2} \right\rfloor$ به ازای $k=0$ و $k=1$ برابر 1- است، به ازای سایر اعداد حسابی برابر صفر است :

$$\sum_{k=0}^4 \left\lfloor \frac{k-2}{k+2} \right\rfloor = -2$$