

1A, V, W

$W, 9, 13, 17, \dots$ $- d = 4$

$a_n = a + (n-1)d$ الف

$a_{10} = a + (9)d = 41$ ب

$d = 10 - 6 = 4$

$a_{10} = 6 + 4(9) = 42$

$S_{10} = \frac{10}{2} (42 + 6) = 240$

الف ۲

الف اول: a_1, a_2, a_3, a_4

ب اول: a_5, a_6, a_7, a_8

ج اول: $a_9, a_{10}, a_{11}, a_{12}$

الف اول: $d(n-1) + 1$

الف اول: $4(9) + 1 = a_{10}$

الف اول: $a_1 + 9d + a_2 + 8d + a_3 + 7d + a_4 + 6d$

$S_4 = 4a_1 + 11d$

$4(6) + 11(4) = 44$

$1 + \sqrt{3}, 2, 3 - \sqrt{3}, \dots$

$d = 2 - 1 - \sqrt{3} = 1 - \sqrt{3}$ ✓

۱A, V, W ۳

$a_{12} - a_{10} = a_1 + 11d - a_1 + 9d = 2d \rightarrow 2d = 2(1 - \sqrt{3}) = 2 - 2\sqrt{3}$

$b_n = x, y, z \rightarrow z = \frac{x+y}{2} \rightarrow x+y = 2z$

$a_n = a^x, x \cdot a^x, a^y \rightarrow x \cdot a^x = \frac{a^x + a^y}{2}$ ۴

$y \cdot a^x = a^x + a^y \rightarrow a^y = y \cdot a^x - a^x \rightarrow a^y = a^x (y-1) \rightarrow a^y = a^{x+1}$ ۵

$x+1 = y \rightarrow x + 2x+1 = 2 \rightarrow 3x = 1 \rightarrow x = \frac{1}{3}, y = 2 \rightarrow xy = \frac{1}{3} \cdot 2 = \frac{2}{3}$

$2x-1 = \frac{2x-1}{2} + yx \rightarrow 2x-1 = x-1 \rightarrow x = 0$

$-1, 0, 1, \dots \rightarrow a_1 = 0$

$a_n = 1, 4, 9, \dots$

$a_n = 1 + (n-1) \cdot 3 = 3n-2$

$b_m = 1, 4, 9, 16, \dots$

$b_m = 1 + (m-1) \cdot 3 = 3m-2$

$a_n = b_n$

$3n-2 = 3m-2$

$n = m$

مجموع

$a_1 = b_1 = 1, a_{10} = b_{10} = 29$ ۶

$a_2 = b_2 = 4, a_{11} = b_{11} = 32$

$a_3 = b_3 = 9, a_{12} = b_{12} = 36$

$a_{11} = b_{11} = 32$

$a_{12} = b_{12} = 36$

$a_1 + a_2 + a_3 = 14$

$a_1 + a_4 + a_9 = 21$

$3a_1 + 3d = 21$

$a_1 + a_2 + a_3 = 14$

$a_1 + a_4 + a_9 = 21$

$3a_1 + 9d = 21$

$3a_1 + 3d = 21$

$3a_1 + 9d = 21$

$3d = 18 \rightarrow d = 6$

$a_2 = a_1 + d = 1 + 6 = 7$

$\frac{a_2 - a_1 + a_1}{a_1} = \frac{6}{1} = 6$

$3a_1 + 3d = 21$

$3a_1 = 21 - 18 \rightarrow a_1 = 1$

$$a_1 + a_r + a_r = 10$$

$$a_1 + a_1 + d + a_1 + r d = 10$$

$$r a_1 + r d = 10$$

$$a_{10} = r + (9)r = 10r$$

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

$$a_1 + r d + a_1 + r d = 10$$

$$r a_1 + r d = 10$$

$$\begin{cases} r a_1 + r d = 10 \times r \\ r a_1 + r d = 10 \times r \end{cases} \Rightarrow \begin{cases} r a_1 + r d = 10 \\ r a_1 + r d = 10 \end{cases}$$

$$10d = 10$$

$$d = 1$$

$$\textcircled{P} \quad r a_1 + r d = 10$$

$$r a_1 = 10 - r d = 10 - r$$

$$S_n = \frac{n}{r} [r a_1 + (n-1)d]$$

$$S_9 = 9 S_r$$

$$\frac{r}{9} \times 9 (r a_1 + 8d) = \frac{r}{9} \times 9 (r a_1 + r d)$$

$$r a_1 + 8d = r (r a_1 + r d)$$

$$-4a_1 + r a_1 = -8d + 4d$$

$$r a_1 = 4d$$

$$d = r a_1$$

$$\frac{a_{10}}{a_r} = \frac{a_1 + 9d}{a_1 + 4d} = \frac{a_1 + 9(r a_1)}{a_1 + 4(r a_1)} = \frac{a_1 + 9r a_1}{a_1 + 4r a_1} = \frac{r a_1}{r a_1} = 1$$

$$\frac{10 - 11}{1 - 1} = \frac{10 - 11}{1} = 1 = d$$

$$\text{Using } a_1 = 11 + (r)/1 = 12$$

$$a_1 = a_1 + r d = 12 + 1d = 13$$

$$\frac{13 - 12}{1} = 1 = d$$

$$10 - 12 = -2 = r$$