$a_n = 47 \quad d=5 \quad S_n = 245$

$a_1 = ? \quad n = ?$

$a_n = a_1 + (n-1)d$

$S_n = \frac{n}{2} \times (a_1 + a_n)$

$$\begin{cases} 47 = a_1 + (n-1)\times 5 \\ 245 = \frac{n}{2}(a_1 + 47) \end{cases}$$

$a_1 = 47 - 5(n-1)$

$a_1 = 47 - 5n + 5$

$a_1 = 52 - 5n$

$245 = \frac{n}{2} \times (52 - 5n + 47)$

$245 = \frac{n(99 - 5n)}{2} \quad /\times 2$

$490 = 99n - 5n^2$

$-5n^2 + 99n - 490 = 0$

$d = b^2 - 4ac$

$d = 1$

$k = \frac{-b \pm \sqrt{d}}{2a}$

$k = \{9\frac{4}{5}; 10\}$

$\mathbb{N} \Rightarrow 10$

$n = 10$

$a_1 = 52 - 50$

$a_1 = 2$

$a_5 = 11$

$a_9 = 19$

$S_n = 440$

$n = ?$

$19 = 11 + (9-5)d$

$19 = 11 + 4d$

$8 = 4d$

$d = 2$

~~$S_n = 11 + (n-1)2 \quad 440 = \frac{n}{2}(3 + a_n)$~~

$S_n = 11 + 2n - 2$

$440 = 9 + 2n$

$a_1 = 11 - 4 \times 2$

$a_1 = 3$

$$\begin{cases} 440 = \frac{n}{2}(3 + a_n) \\ a_n = 3 + (n-1)d \end{cases}$$

~~$880 = n(3 + a_n)$~~

$a_n =$

$a_n = 3 + 2n - 2$

$a_n = 1 + 2n$

$440 = \frac{n}{2}(3 + 1 + 2n)$

$880 = 4n + 2n^2$

$2n^2 + 4n - 880 = 0$

$d = \{20; -22\} \Rightarrow \mathbb{N} \quad 20$

$n = 20$

$a_2 + a_6 = 18$

$a_4 + a_9 = 38$

$a_2 = a_1 + d$

$a_6 = a_1 + 5d$

$a_4 = a_1 + 3d$

$a_9 = a_1 + 8d$

$$\begin{cases} a_1 + d + a_1 + 5d = 18 \\ a_1 + 3d + a_1 + 8d = 38 \end{cases}$$

$$\begin{cases} 2a_1 + 6d = 18 \\ 2a_1 + 11d = 38 \end{cases}$$

$5d = 20$

$d = 4$

$2a_1 + 24 = ~~38~~ \; 18$

~~$a_1 + 12 = 19$~~

~~$a_1 = 7$~~

~~$2a_1 = 14$~~

~~$a_1 = 7$~~

$2a_1 = -6 \quad /:2$

$a_1 = -3$

Geometrická posloupnost

$\{2; \underset{\times 2}{4}; \underset{\times 2}{8}; \underset{\times 2}{16}\}$ kvocient q

$a_{n+1} = a_n q$

$a_n = a_1 q^{n-1}$

$a_s = a_r q^{s-r}$

$S_n = a_1 \frac{q^n - 1}{q - 1}$