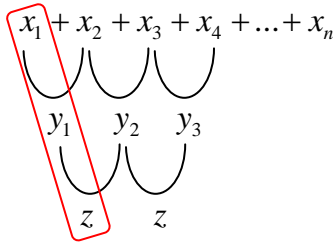


Barisan dan Deret – Bader Bertingkat

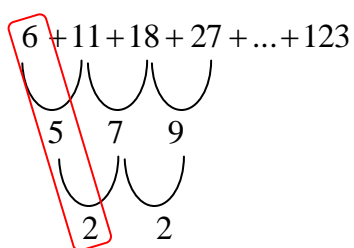
Bader Bertingkat 2:

Misalkan deret bertingkat $x_1 + x_2 + x_3 + x_4 + \dots + x_n$ dimana $y_k = x_{k+1} - x_k$ dan $z = y_{k+1} - y_k$.



$$\begin{aligned}
 U_n &= an^2 + bn + c \\
 &= \frac{z}{2}n^2 + \left(y_1 - \frac{3z}{2}\right)n + (x_1 - y_1 + z) \\
 &= \frac{z}{2}n^2 + y_1n - \frac{3z}{2}n + x_1 - y_1 + z \\
 &= x_1 + y_1n - y_1 + \frac{z}{2}n^2 - \frac{3z}{2}n + z \\
 &= x_1 + (n-1)y_1 + (n^2 - 3n + 2)\frac{z}{2} \\
 &= x_1 + (n-1)y_1 + (n-1)(n-2)\frac{z}{2}
 \end{aligned}$$

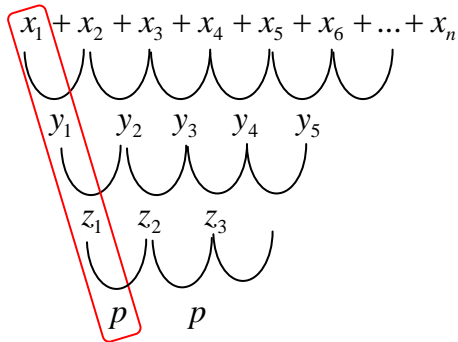
Contoh soal:



$$\begin{aligned}
 \left\langle U_n = x_1 + (n-1)y_1 + (n-1)(n-2)\frac{z}{2} \right. \\
 &= 6 + (n-1) \cdot 5 + (n-1)(n-2)\frac{2}{2} \\
 &= 6 + 5n - 5 + n^2 - 3n + 2 \\
 &= n^2 + 2n + 3
 \end{aligned}$$

Bader Bertingkat 3:

Misalkan deret $x_1 + x_2 + x_3 + x_4 + \dots + x_n$ dimana $y_k = x_{k+1} - x_k$, $z_k = y_{k+1} - y_k$ dan $p = z_{k+1} - z_k$.



$$U_n = an^3 + bn^2 + cn + d$$

$$= \frac{p}{6}n^3 + \left(\frac{1}{2}z_1 - p\right)n^2 + \left(y_1 - \frac{3}{2}z_1 + \frac{11}{6}p\right)n + (x_1 - y_1 + z_1 - p)$$

$$= \frac{p}{6}n^3 + \frac{1}{2}z_1n^2 - pn^2 + y_1n - \frac{3}{2}z_1n + \frac{11}{6}pn + x_1 - y_1 + z_1 - p$$

$$= x_1 + y_1n - y_1 + \frac{1}{2}z_1n^2 - \frac{3}{2}z_1n + z_1 + \frac{p}{6}n^3 - pn^2 + \frac{11}{6}pn - p$$

$$= x_1 + (n-1)y_1 + (n^2 - 3n + 2)\frac{z_1}{2} + (n^3 - 6n^2 + 11n - 6)\frac{p}{6}$$

$$= x_1 + (n-1)y_1 + (n-1)(n-2)\frac{z_1}{2} + (n-1)(n-2)(n-3)\frac{p}{6}$$

Bagaimana rumus suku ke- n bader bertingkat 4? Dapatkah kalian tentukan? Silakan dicoba untuk latihan dirumah...

Note:

*Bentuk rumus awal sudah diuraikan sebelumnya,
Silakan buka kembali rumusnya...*

