

14. 05. 2017.

A

(B analogues)

1. KONVEST
2 2 2 2

$$\frac{11!}{2!2!2!2!}$$

2. n^m

3. 7354126

4. $x^3 y$ $(2 - \sqrt{x} + \sqrt{y})^{12} = \sum \binom{12}{i, j, k} 2^i (-x)^{\frac{j}{2}} y^{\frac{k}{2}}$

$$i+j+k=12$$

$$0 \leq i, j, k \leq 12$$

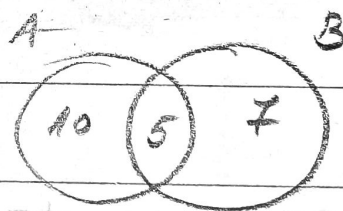
$$\frac{j}{2} = 3 \Rightarrow j = 6 \quad \frac{k}{2} = 1 \Rightarrow k = 2 \Rightarrow i = 12 - 8 = 4$$

$$2^4 \cdot (-x)^3 \cdot y = \boxed{-16} x^3 y$$

5. $\sum_{\substack{i+j+k=8 \\ i, j, k \geq 0}} \binom{8}{i, j, k} = (1+1+1)^8 = 3^8$

6. A - Java

B - Python



8 ne
bic

$$|A \cup B| = 30$$

$$\boxed{17}$$

$$15$$

$$13$$

$$10 \cup B = 5$$

7. $F_2 + F_4 + \dots + F_{2n} = F_{2n+1} - 1$

$$F_1 = 1$$

$$F_2 = 1$$

$$F_3 = 2$$

1° $n=1$: $F_2 = F_3 - 1$

2° prep. : $F_2 + F_4 + \dots + F_{2n} = F_{2n+1} - 1$

3° $n+1$: $F_2 + F_4 + \dots + F_{2n} + F_{2n+2} = \boxed{F_{2n+3} - 1}$

$$\stackrel{\text{def}}{=} \boxed{F_{2n+1} + F_{2n+2} - 1} = F_2 + F_4 + \dots + F_{2n} + F_{2n+2}$$

u

$$8. \quad a_0 = 0 \quad a_1 = 2$$

$$a_n = -6a_{n-1} + 7a_{n-2}, \quad n \geq 2$$

Charakter. polynom: $t^2 + 6t - 7 = 0$
 $(t+7)(t-1) = 0$
 $t_1 = -7 \quad t_2 = 1$

$$a_n = A \cdot (-7)^n + B \cdot 1^n = A(-7)^n + B$$

$$\begin{aligned} a_0 = 0 &= A + B \\ a_1 = 2 &= -7A + B \end{aligned} \quad \left\{ \begin{array}{l} 8A = 2 \Rightarrow A = -\frac{1}{4} \quad B = +\frac{1}{4} \end{array} \right.$$

$$a_n = \frac{1 - (-7)^n}{4}$$