

Exercice 1 Calculer

a) $(a+b)^{n+1}=?$

b) $(x+2)^{n-1}=?$

c) $\sum_{k=0}^n \binom{n}{k} 2^k$

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d) $\sum_{j=0}^{p-1} \binom{p}{j} 2^j$

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e) $\sum_{k=0}^{n-1} \binom{n-1}{k} 2^k$

f) $\sum_{k=1}^n \binom{n}{k} 2^k 3^{n-k}$

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g) $\sum_{k=1}^n \binom{n+1}{k} 2^k 3^{n-k}$

h) $\sum_{k=0}^{2n} \binom{2n}{k} 2^{n-k} 3^{3n+2k}$

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i) $\sum_{k=0}^n \binom{n}{k} \exp(a.k)$

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j) $\sum_{k=0}^n \binom{n+1}{k+1} a^k b^{n-k}$

Exercice 2 Calculer $A = (2 - \mathbf{i})^5$ avec $\mathbf{i}^2 = -1$ **Exercice 3**

1) $u_n = 2n^2 + 5$ $u_{n+1}=?$ $u_{n-1}=?$

2) $v_{n+1} = 3(n+2)v_n - 5n.v_{n-1}$ $v_n=?$ $v_{2n}=?$

3) $w_{n-1} = -2n^2 + 3n$ $w_{2n}=?$ $w_{2n+1}=?$

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