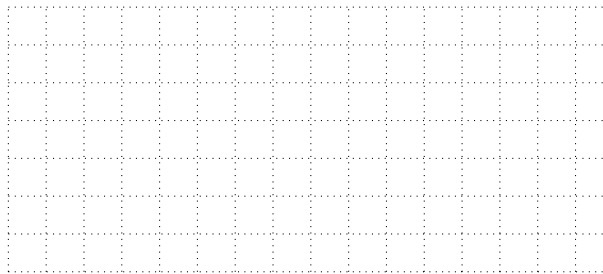


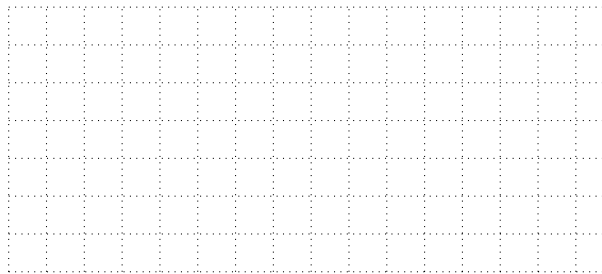
2. Sommes faisant intervenir le binôme de Newton

Exemple 2 – Sommes lacunaires

Calculer $\sum_{k=2}^6 \binom{6}{k} 2^k 3^{6-k}$:



Calculer $\sum_{k=3}^9 \binom{9}{k} 5^k (-3)^{9-k}$:



Calculer $\sum_{k=2}^{10} \binom{10}{k} 4^k (-2)^{10-k}$:



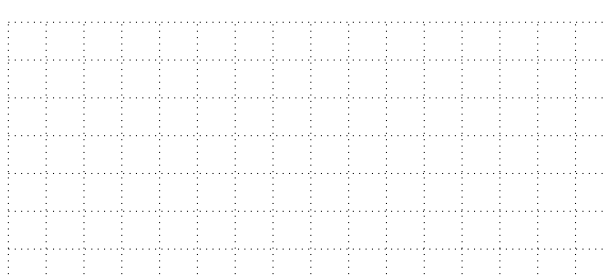
Calculer $\sum_{k=3}^{21} \binom{21}{k} 9^k (-5)^{21-k}$:



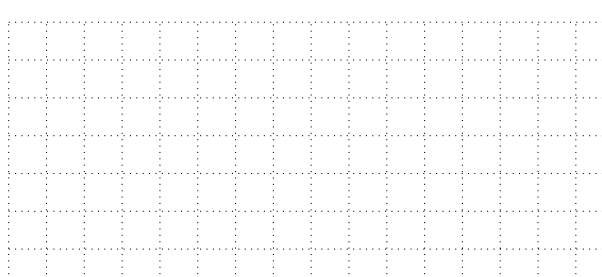
□

Exemple 3 – Formule du binôme cachée

Calculer $\sum_{k=0}^9 \binom{9}{k} 5^k$:



Calculer $\sum_{k=0}^9 \binom{9}{k} (-5)^k$:



Calculer $\sum_{k=0}^8 \binom{8}{k}$:

Calculer $\sum_{k=0}^8 \binom{8}{k} (-1)^k$:

□

Exemple 4 – Faire apparaître la formule du binôme

Calculer $\sum_{k=0}^9 \binom{9}{k} 5^k$:

Calculer $\sum_{k=0}^9 \binom{9}{k} (-5)^k$:

Calculer $\sum_{k=0}^9 \binom{9}{k} 5^{k-2} (-3)^{9-k}$:

Calculer $\sum_{k=0}^6 \binom{6}{k} 2^k 3^{4-k}$:

Calculer $\sum_{k=0}^9 \binom{9}{k} 5^{k-2} (-3)^{12-k}$:

Calculer $\sum_{k=0}^6 \binom{6}{k} 2^{k+2} 3^{8-k}$:

□