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This month's "free sample" is:

4021. *Proposed by Arkady Alt.*

Let $(\bar{\mathbf{a}}_n)_{n \geq 0}$ be a sequence of Fibonacci vectors defined recursively $\bar{\mathbf{a}}_0 = \bar{\mathbf{a}}, \bar{\mathbf{a}}_1 = \bar{\mathbf{b}}$ and $\bar{\mathbf{a}}_{n+1} = \bar{\mathbf{a}}_n + \bar{\mathbf{a}}_{n-1}$. Prove that the sum of vectors $\bar{\mathbf{a}}_0 + \bar{\mathbf{a}}_1 + \dots + \bar{\mathbf{a}}_{4n+1}$ equals $k\bar{\mathbf{a}}_i$ for some i and constant k .

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4021. *Proposé par Arkady Alt.*

Soit $(\bar{\mathbf{a}}_n)_{n \geq 0}$ une suite de vecteurs définie de façon récursive à la manière de Fibonacci : $\bar{\mathbf{a}}_0 = \bar{\mathbf{a}}, \bar{\mathbf{a}}_1 = \bar{\mathbf{b}}$ et $\bar{\mathbf{a}}_{n+1} = \bar{\mathbf{a}}_n + \bar{\mathbf{a}}_{n-1}$. Démontrer que la somme $\bar{\mathbf{a}}_0 + \bar{\mathbf{a}}_1 + \dots + \bar{\mathbf{a}}_{4n+1}$ est égale à $k\bar{\mathbf{a}}_i$ pour un i quelconque et une constante k .

