$$
c(x)=\sum_{n \geq 0} c_{n} x^{n} \quad A(x)=\sum_{n \geq 0} a_{n} x^{n} \quad B(x)=\sum_{n=0} b_{n} x^{n}
$$

$$
C=A+B \quad V_{C_{n}=\sum_{j=0}^{n} a_{j} b_{n-j}}
$$



$$
C(x)=A(x) B(x)
$$

This is a sketch of the proof of the following fact: If class $C$ is the Cartesian product of classes $A$ and $B$, with generating functions $C(x), A(x)$, and $B(x)$, respectively, then $C(x)=$ $A(x) B(x)$.

Sketching the logic of a proof can help you to understand the proof and may also help you decide how to write the proof.

This sketch also illustrates why writing mathematics is often challenging: logic that requires two (or more) dimensions to display must be condensed to one dimension to fit within a single continuous line of text.

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