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.