

1 Examples

For this we use the vscode extension `LaTeX Workshop` and the the Copilot extension `GitHub Copilot` with the chat extension `GitHub Copilot Chat`. It uses `TeXlive` and the `latexmk` command.

Lemma 1. *All principle submatrices of a symmetric positive-semidefinite matrix are symmetric positive-semidefinite.*

Proof. Let $A \in \mathbb{R}^{n,n}$ be a symmetric positive-semidefinite matrix and let $B \in \mathbb{R}^{k,k}$ be a principle submatrix of A . Furthermore, as B is a principle submatrix of A , there exists a matrix $E \in \mathbb{R}^{n,k}$ such that $B = E^T A E$, has only elements in $\{0, 1\}$ and $E^T E = I$. It follows that B is symmetric positive-semidefinite. \square

GitHub Copilot: Sure, here's a clearer version of the same text:

Proof. Let $A \in \mathbb{R}^{n,n}$ be a symmetric positive-semidefinite matrix, and let $B \in \mathbb{R}^{k,k}$ be a principal submatrix of A . This means that B is obtained by selecting k rows and k columns of A , and arranging them into a square matrix. Since B is a principal submatrix of A , there exists a matrix $E \in \mathbb{R}^{n,k}$ such that $B = E^T A E$, where E has only elements in $\{0, 1\}$ and $E^T E = I$. This means that B is also symmetric positive-semidefinite. \square

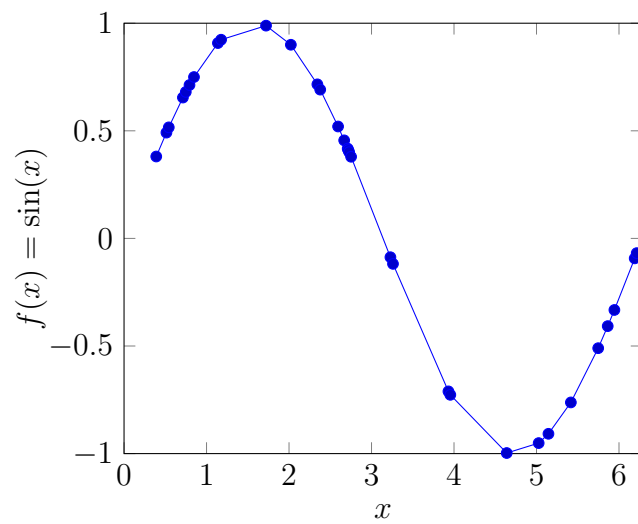


Figure 1: Plot of the function $f(x) = \sin(x)$