

FIGURE 7.1 A sine wave graph rendered via Matplotlib.

Now launch the code in Listing 7.5, and you will see a portion of a sine wave in [Figure 7.1](#).

7.6 FIBONACCI NUMBERS

The Fibonacci sequence is a classic example of a problem that can be solved using recursion. As you can see, each Fibonacci number is the sum of the two preceding Fibonacci numbers.

The following prompt was given to DeepSeek.

Please generate a complete Python code sample that generates some Fibonacci numbers using an iterative solution along with an explanation of the code.

DeepSeek:

Thinking...

We are going to write a function to generate the first n Fibonacci numbers.

The Fibonacci sequence is defined as:

$$\begin{aligned} F(0) &= 0, \quad F(1) = 1 \\ F(n) &= F(n-1) + F(n-2) \quad \text{for } n \geq 2. \end{aligned}$$

We'll also include an example usage at the bottom.