Integral of \( \sin(x) + \cos(x) \)

Consider the following integral:

\[
\int_0^\pi \sin(x) + \cos(x) \, dx.
\]

a) Use what you have learned about definite integrals to guess the value of this integral.

b) Find antiderivatives of \( \cos(x) \) and \( \sin(x) \). Check your work.

c) Use the addition property of integrals to compute the value of:

\[
\int_0^\pi \sin(x) + \cos(x) \, dx.
\]

Check your work by comparing to your answer from part a.