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.

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