Problem of the Week

Problem D

Cartesian Cache

Geocaching is a kind of outdoor treasure hunt where people use GPS devices to look for hidden objects, called caches. In Cartesian Geocaching, instead of using a GPS device, locations are described using Cartesian coordinates.

Hilde sets up a large field for Cartesian Geocaching, measuring the distances in kilometres so that the point $(1, 0)$ lies 1 km east of the point $(0, 0)$, for example.

Hilde starts at point $A(0, 0)$, then walks northwest in a straight line to some point B, where she hides a cache. Then, from B, she walks northeast in a straight line to point $C(0, 4)$ where she hides another cache. Finally she walks straight back to point A.

How far does Hilde walk in total?

