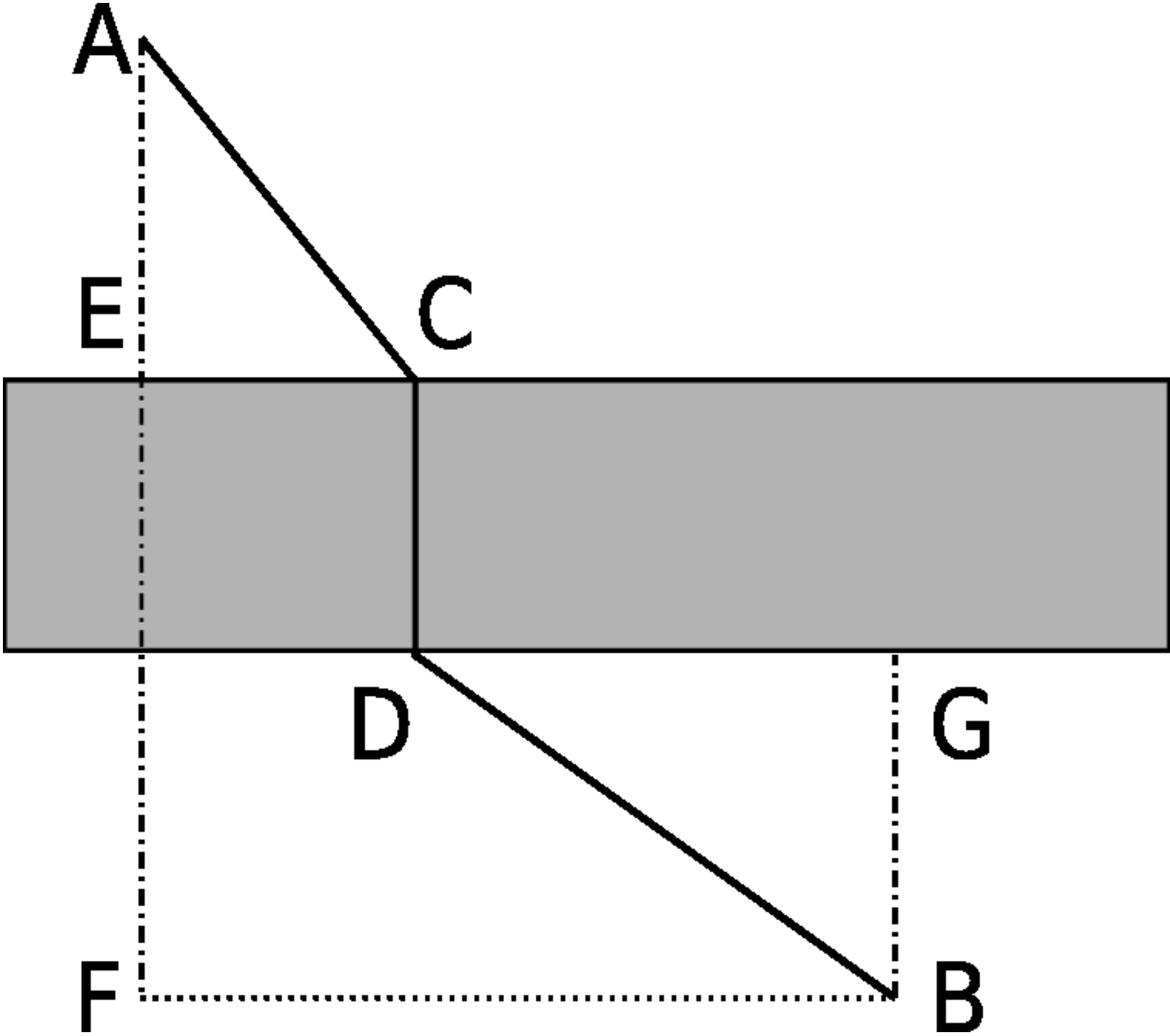


Bridge Building

Problem code: HS09BRI

Find a place to build a bridge over the river, so as to minimize the length of the shortest route between two cities A and B, located on opposite sides of the river.



Input

There is exactly one line of input, containing four integers a , b , c , and h ($10 \leq a, b, c, h < 1000000$), separated by spaces. a - the distance from city A to the river (the length of segment AE in the figure), b - the distance from city B to the river (the length of segment BG in the figure), c - the distance between A and B along the axis parallel to the river (the length of segment BF in the figure) and h - the width of the river (CD in the figure).

Output

Your program should write a single number to the standard output, equal to the length of the shortest path between A and B using the bridge, accurate up to two digits after the decimal dot.

Example

Input :
10 12 90 10
Output :
102.65

Scoring

For solving this problem you will score 10 points.

Added by: Adam Dzedzej

Date: 2009-09-20

Time limit: 1s

Source
limit: 50000B

Languages: SED C99 strict C++ 4.0.0-8 C++ 4.3.2 TCL SCALA NEM PHP SCM guile LISP sbcl
LISP clisp ERL TECS TEXT DOC PDF PS PERL 6 JS

Resource: High School Programming League (thanks to Talent Association)