Problem C. Calculator with Two Buttons

You have a calculator. Initially an integer x is on the display screen. The calculator has only two buttons:

- Button "+": When this button is pressed, the value on the display is increased by 1.
- Button "-": When this button is pressed, the value on the display is negated. (i.e. multiplied by -1)

You want to make the value on the display into y, just by pressing the "+" button and the "-" button. It takes p second(s) to press the "+" button and q second(s) to press the "-" button. You are a speedy person, so you may assume that it takes no time between pressing the buttons.

Given x, y, p, q, write a program that calculates the minimum time required to change the displayed number from x to y. We can prove that this is always possible.

Input

Your input consists of an arbitrary number of records, but no more than 10,000.

Each record is a line that contains four integers $x, y (-10^9 \leq x, y \leq 10^9)$, p, q $(1 \leq p, q \leq 10^9)$, each separated by a space.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print a line that contains the minimum time required to change the displayed number from x to y, in seconds. Note that *you may need to use 64-bit type integer to store this value!*

Example

Standard input	Standard output
10 20 5 6 -1 2 10000 1 -100000000 1000000000 999999999 999999999 -1	50 10001 900000000099999999

Time Limit

1 second.