

Q6. Target Winning Rate (15 marks):

As an accomplished athlete in the field of badminton, Dena has actively participated in numerous competitive events, accumulating a certain number, say b , of matches played. Out of these b matches, a have resulted in winning outcomes, thereby establishing Dena's current winning rate as a/b .

On the other hand, Dena has set a minimum target winning rate, denoted by x/y . Given this scenario, Dena is contemplating the following inquiry: What is the minimum number of additional matches, q , she must undertake so that it is possible for her to achieve a winning rate which is greater than or equal to x/y in badminton competitions?

Write a program to

Input four integers a , b , x and y , where $0 \leq a \leq b \leq 10000000000$, $0 \leq x \leq y \leq 10000000000$, $b > 0$ and $y > 0$.

Output the minimum number of additional matches, q , Dena must undertake so that it is possible for her to achieve or exceed her minimum target winning rate of x/y , where $q \geq 0$. If it is impossible to achieve the target winning rate, the program should output -1.

试题 6. 目标胜率 (15 分) :

作为一位优秀的羽毛球运动员，迪娜积极参与了众多的竞技赛事，累积了一定数量的比赛经验。假设迪娜已经参与了 b 场比赛，在这 b 场比赛中有 a 场迪娜取得了胜利，因此目前迪娜在比赛中的胜率为 a/b 。

另一方面，迪娜设定了一个目标，要达成至少为 x/y 的胜率。在这情况下，迪娜思考了以下问题：她至少需要再参加多少场额外的比赛， q ，才有可能在羽毛球比赛中取得一个大于或等于 x/y 的胜率？

试写一程式以

输入四个整数 a , b , x 和 y ，满足 $0 \leq a \leq b \leq 10000000000$, $0 \leq x \leq y \leq 10000000000$, $b > 0$ 和 $y > 0$ 。

输出迪娜至少再需要参加多少场额外的比赛, q ，以达到或超越她的最低目标成功率 x/y , 其中 $q \geq 0$ 。

如果无法达到目标成功率，则程式应输出-1。

Example (例子)

Input (输入)	Output (输出)
4 9 3 5	4
7 29 11 51	0
333 998 1 1	-1