Exercise – *Maximize it!*

Your company often needs to solve simple optimization problems of two types.

$$\begin{aligned}(1)\quad \max\ & b\cdot y - a\cdot x \\ \text{s.t. } & x, y \geqslant 0 \\ & x + y \leqslant 4 \\ & 4x + 2y \leqslant ab \\ & -x + y \leqslant 1\end{aligned}$$

$$\begin{aligned}(2)\quad \min\ & a\cdot x + b\cdot y + z \\ \text{s.t. } & x, y, z \leqslant 0 \\ & x + y \geqslant -4 \\ & 4x + 2y + z \geqslant -ab \\ & -x + y \geqslant -1\end{aligned}$$

For any values of parameters a and b, find the optimal value.

Input The input consists of several test sets. Each test set appears on a separate line, consisting of three integers `p a b`, where `p` is the type of the problem to solve ($p \in \{1, 2\}$) and a, b are the values of the parameters ($0 \leqslant a \leqslant 100$, $-100 \leqslant b \leqslant 100$). The input is terminated by a line containing only `0`.

Output For each test set, write on a separate line the optimal value of the problem of type p with parameters a, b, rounded down to the next integer for the maximization problem, and rounded up to the next integer for the minimization problem. If there is no solution, write `no`, and if there are solutions of arbitrarily high value (arbitrarily low for minimization), then output `unbounded`.

Sample Input

```
1 1 1
1 3 -3
2 1 1
2 2 1
0
```

Sample Output

```
0
no
-1
-2
```