DWITE '10 R1 #3 - Power tiles

Time limit: 2.0s **Memory limit:** 64M

DWITE Online Computer Programming Contest, October 2010, Problem 3

You are given a rectangular floor that is to be tiled with square tiles. The tiles come in a variety of sizes, but they all measure in some power of two: 1, 2, 4, 8, etc. A 5×6 space can be tiled with 30 of the smallest tile, but the minimum number of tiles required is only 9. Refer to the pattern below.

The input will contain 5 lines, a pair of integers $1 \leq N, M \leq 10\,000$, separated by a space.

The output will contain 5 lines, the minimum number of tiles necessary to exactly cover the N by M space.

Sample Input

```
10 5
1000 1001
21 13
9999 888
345 1277
```

Sample Output

```
14
1358
42
4065
2046
```

Problem Resource: DWITE