Sine Wave
Problem ID: a04p09sinewave

Let us attempt to draw a sine wave using whitespace and the `X` character. Sine waves are usually drawn horizontally, but standard program output is ordered from top to bottom. We will therefore draw our wave vertically.

Our program shall accept two arguments:

- N, which controls how many waves should be drawn
- L, which controls how many lines are used to print the waves

Most programming languages have a built in function to compute the sine of a value. For example, Python has a built in `math.sin` function that we could leverage. Alas, the sine function takes radians, distance travelled along the perimeter of a unit circle, as input. How will we figure out the value to input for each line?

A circle is 2π radians. Since we wish to draw N waves, the total distance in radians is given by $2\pi N$. Therefore, the distance travelled from one line to the next will be $\frac{2\pi N}{L}$. We can then see that for the ith line, where $0 \leq i < L$, the distance travelled in radians up to that line is $r_i = i \cdot \frac{2\pi N}{L}$.

We are not done yet, as $\sin(x)$ will return a real number between -1.0 and 1.0, inclusive. We cannot print a negative number of `X`s, and to make sure the wave is clearly visible, we still need an appropriate number of `X`s. Let us use 40 for the full width, or peak-to-peak amplitude, of the waves. In other words, an amplitude of 20, also called semi-amplitude. Then we need to linearly transform the return value of the sine function to a real number between 0 and 40, and round that number to figure out how many `X` characters to print. See the table below for examples.

Sine value	Number of `X` characters to print
-1.0	0
0.0	20
1.0	40
0.8414709848078	37

Input

Input consists of two lines. The first line contains the integer N, the number of waves to draw, where $1 \leq N \leq 10$. The second line contains the integer L, the number of lines used to draw the waves, where $1 \leq L \leq 1\,000$.

Output

Draw the sine wave as described above. Exactly one newline character (`\n`) should immediately follow the last `X` on each line. If your program outputs additional whitespace, it will be considered incorrect.

Sample Input 1

```
1
20
```

Sample Output 1

```
XXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXX
XXXXXXXXXXXX
XXXXXXXX
XXXX
X

X
XXXX
XXXXXXXX
XXXXXXXXXXXXXX
```

Sample Input 2

```
2
12
```

Sample Output 2

```
XXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXX
XXX
XXX
XXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXX
XXX
XXX
```

Sample Input 3	Sample Output 3
1 40	XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXX XXXXXXXXXXXXXX XXXXXXXXXXXXX XXXXXXXXXXXX XXXXXXXXXXX XXXXXXXXXX XXXXXXXXX XXXXXXXX XXXXXXX XXXXXX XXXXX XXXX XXX XX X

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