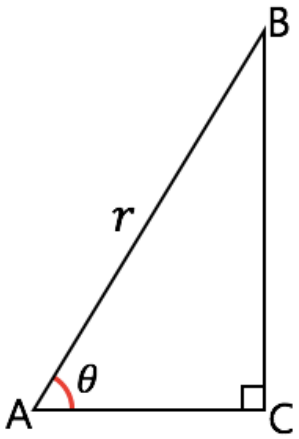
Right triangle 2



There is a right triangle ΔABC where $\angle C = 90°$. You are given θ (the size of the angle $\angle A$, in degrees) and r (the length of $\overline{AB}$). Please write a program that finds the length of $\overline{AC}$ and $\overline{BC}$.

Input

Your input consists of an arbitrary number of lines, but no more than 1,000.

Each line consists of two integers θ $(0° < \theta° < 90°)$ and r $(1 \leq r \leq 10)$, separated by a space.

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

Output

For each input line, print the length of $\overline{AC}$ and the length of $\overline{BC}$, separated by a space. Print 5 digits (even if it is zero) after the decimal point. Your answer will be considered correct if and only if $|(your\ answer) - (our\ answer)| \leq 10^{-5}$.

Example

Standard input	Standard output
30 1 45 2 60 3 -1	0.86603 0.50000 1.41421 1.41421 1.50000 2.59808

Time Limit

1 second.