Day 5: Normal Distribution I

HackerRank

Objective

In this challenge, we learn about normal distributions. Check out the Tutorial tab for learning materials!

Task

In a certain plant, the time taken to assemble a car is a random variable, X, having a normal distribution with a mean of 20 hours and a standard deviation of 2 hours. What is the probability that a car can be assembled at this plant in:

1. Less than 19.5 hours?
2. Between 20 and 22 hours?

Input Format

There are 3 lines of input (shown below):

```
20 2
19.5
20 22
```

The first line contains 2 space-separated values denoting the respective mean and standard deviation for X. The second line contains the number associated with question 1. The third line contains 2 space-separated values describing the respective lower and upper range boundaries for question 2.

If you do not wish to read this information from stdin, you can hard-code it into your program.

Output Format

There are two lines of output. Your answers must be rounded to a scale of 3 decimal places (i.e., 1.234 format):

1. On the first line, print the answer to question 1 (i.e., the probability that a car can be assembled in less than 19.5 hours).
2. On the second line, print the answer to question 2 (i.e., the probability that a car can be assembled in between 20 to 22 hours).