Day 6: The Central Limit Theorem I

Objective

In this challenge, we practice solving problems based on the *Central Limit Theorem*. Check out the Tutorial tab for learning materials!

Task

A large elevator can transport a maximum of 9800 pounds. Suppose a load of cargo containing 49 boxes must be transported via the elevator. The box weight of this type of cargo follows a distribution with a mean of $\mu = 205$ pounds and a standard deviation of $\sigma = 15$ pounds. Based on this information, what is the probability that all 49 boxes can be safely loaded into the freight elevator and transported?

Input Format

There are 4 lines of input (shown below):

```
9800
49
205
15
```

The first line contains the maximum weight the elevator can transport. The second line contains the number of boxes in the cargo. The third line contains the mean weight of a cargo box, and the fourth line contains its standard deviation.

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

Output Format

Print the probability that the elevator can successfully transport all 49 boxes, rounded to a scale of 4 decimal places (i.e., 1.2345 format).