Day 4: Geometric Distribution I

1 more challenge to get your next star!

Points: 14/15

10 Days of Statistics ★★★

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Objective

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

Task

The probability that a machine produces a defective product is $\frac{1}{3}$. What is the probability that the 1^{st} defect is found during the 5^{th} inspection?

Input Format

The first line contains the respective space-separated numerator and denominator for the probability of a defect, and the second line contains the inspection we want the probability of being the first defect for:

```
1 3
5
```

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

Output Format

Print a single line denoting the answer, rounded to a scale of 3 decimal places (i.e., 1.234 format).

Python 3

```
# Enter your code here. Read input from STDIN. Print output to STDOUT

p1, p2 = [int(i) for i in input().split()]
n = int(input())
p = p1/p2
q = 1-p

# Calculate Geometric Distribution
print (round((q**(n-1))*p,3))
```

Line: 9 Co