

PROBLEM STATEMENT:

In number theory, the **prime factors** of a positive integer are the **prime numbers** that divide that integer exactly (a **prime number** is a number that can be divided only by 1 or itself).

The **prime factorization** of a positive integer is a list of the integer's prime factors, together with their multiplicities. E.g.

$$12 = 2 \times 2 \times 3 = 2^2 \times 3 \quad 147 = 3 \times 7 \times 7 = 3 \times 7^2 \quad 17 = 17$$

Write a Python program that computes **prime factorization** of positive integers **USING RECURSION**. The input numbers will be given as the command-line argument `sys.argv[1]` separated by a comma ','. The output should only be printed to the console. Solution for each number should be printed on a separate line.

INPUT FORMAT

Sample command line input: `python3 quiz7.py 12,147,17`

OUTPUT FORMAT

1. Your program should print the following sentence to the console before outputting the results:

`Quiz 7: Recursion`

2. Expected outputs in the console for the given sample input:

$$12 = 2^2 * 3$$

$$147 = 3 * 7^2$$

$$17 = 17$$

SUBMISSION FORMAT

Zip your file before submitting (not .rar, only .zip files are supported by the system). File hierarchy:

- <student id>.zip
- quiz7.py