

Print is not the same as Return

↑
displays output on the screen
does not store values internally

↑
sends values from a
function to the code
that called the function,
for later use

Prime Numbers

An integer $n \geq 2$ is prime if and only if
its only factors are 1 and n .

Examples: $n = 7$ is prime, $n = 23$ is prime
 $n = 12 = 4 \times 3$ is not prime; 12 is composite

The number 1 is neither prime nor composite.

Question: How can we determine whether an integer
is prime?

example: $n = 2,931,133$
 $= 1031 \times 2843$

Try dividing by
smaller integers,
use % (mod)
operator

Current Records:

- Arbitrary numbers up to about 200 digits can be factored
- RSA-250, a 250-digit number, was factored in 2020
this took 2,700 core-years of processing time.
- Arbitrary numbers of more than 15000 digits can be proven prime.
- Largest known prime: $2^{82589933} - 1$ ← Mersenne primes
(24 million digits)
found in 2018

TASK: Write a function `isPrime(n)`

input: positive integer `n`

output: True if `n` is prime, False otherwise

(Assume you don't already have a list of primes.)