

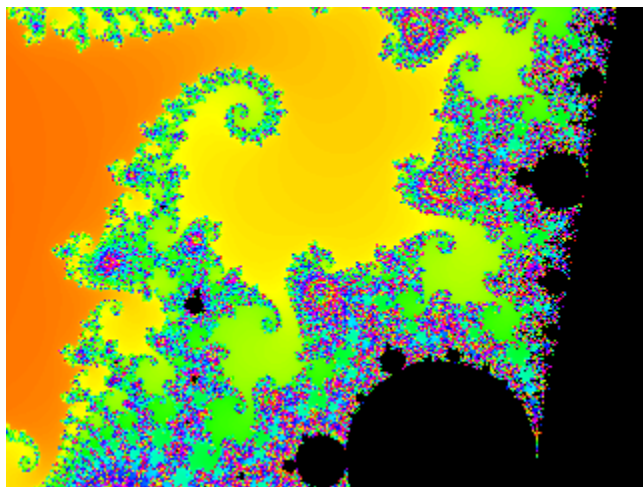
April 2023 Problem of the Month

We will find all p digit numbers (positive integers) containing exactly p factors where p is a prime number. Factors of a number include 1 and itself. For example, the factors of 12 are 1, 2, 3, 4, 6, 12.

- a) Find all 2 digit numbers containing exactly 2 factors.
- b) Find all 3 digit numbers containing exactly 3 factors.
- c) Find all 5 digit numbers containing exactly 5 factors.
- d) Find all p digit numbers containing exactly p factors for prime $p \geq 7$.
- e) Show that we have found them all.

You may write your answers as prime factorizations if you like.

Please email solutions to Dr London at slondon@luc.edu in PDF form by 11:59 pm on April 30.



Preparing people to lead extraordinary lives