

New Concepts

Problem Set #15

*“We only think when confronted with a problem.”*

- John Dewey

New Postulates and Theorems

Problems:

(Your goal for these problems is not simply to solve, but rather to write an elegant solution to justify your result. It should be written well enough so that it can be shown to your peers and they can reason through your process without the need for you to add comment)

15-1 5 or 500,000?

How many different positive integers less than a million have digits that sum to 5?

15-2 Squares inside Squares

A square can be divided into four smaller squares, and, as the figure shows, it is possible to divide a square into seventeen smaller squares. In addition to four and seventeen, what number of smaller squares are possible? The smaller squares can be of any size whatsoever, as long as they fit neatly together to form one large square.

