

REVERSED DIGITS AS AGES

Part 1. A woman is 74 and her daughter is 47 at an instant in time. Are there any other ages when this woman and daughter will have, or have had, exactly reversed digits for their ages at a given instant?

Part 2. In general, describe the circumstances and conditions under which any two given people (not necessarily mother and daughter) can have ages whose digits are exactly reversed from each other. An example for the general case would be 29 and 92 as a pair.

NOTE: For both parts of this problem assume ages less than 100. You may also assume the 00, 01, 02, ... are the digits of the ages 0, 1, 2, ...

RULES

- (1) You must be an undergraduate enrolled in classes at USC-Columbia.
- (2) Write your solutions clearly and show all of your work.
- (3) Staple all sheets together.
- (4) Bring your solutions to the math office (LC 411) and drop it in the box provided.
- (5) **Include your name and email address.**
- (6) Sign the drop-off sheet to record your submission.

Look for a new problem on the 15th of every month!