RPN Programming Contest

September 27-28, 2025 – Orlando

Change is coming!

Many people can't make change in their heads. This program takes input as a two-digit decimal value between 0 and 1 inclusive and outputs coins used for change.

The program should accept input in cents, and should not consider half dollars as standard change. Standard coins that you must use are as follows: quarters (25 cents), dimes (10 cents), nickels (5 cents), and pennies (1 cent). Use Q, D, N and P to stand for the coins as below. The program should output only those coins that are to be given to the customer using AVIEW and in the display when the program stops. If there are two or more ways to displaying a result, the shortest character string to represent the change should be displayed. Use the global LBL CHG for this program and your program byte count should include an END. Stack does not need to be saved. Winning program is smallest bytes count. Plain HP 41CX functions only. HP-41C/CV users may use the extended functions module and/or time module functions if desired. No other plug-in roms allowed. Each successive run of the program should work by pressing R/S.

Input: Positive decimal value
Output: AVIEW of change.

Examples:
Input: 0.89 XEQ "CHG"
Output: `3Q 1D 4P`

Input: 1 R/S
Output: `4Q`

Input: 0 R/S
Output: `0P`

Tiebreaker - Like a good neighbor

Since we have had ties for previous contests, the tiebreaker this year will be the winning routine for this problem. If you do not enter the tiebreaker and there is a tie between you and someone else, they automatically win if they entered the tiebreaker.

Two fractions are considered "neighbors" if the numerator of the reduced absolute value of the difference between the two fractions is 1. For example, the fractions 1/2 and 1/3 subtract to produce an answer of 1/6, and are therefore "neighbors", since the reciprocal of the difference is an integer. However, 2/5 and 4/5 differ by 2/5, and are not neighbors – there is no 1/X where X is an integer that is the difference between 2/5 and 4/5. Careful about that rounding! Warning, the simplest approach that comes to mind may introduce rounding.

Your program should include a global label of “NB” and include the byte count for an END. Each successive run of the program should work by pressing R/S.

Input: Numerator ENTER Denominator ENTER Numerator ENTER Denominator as integer values.

Output: The positive “neighbor” difference between the two fractions in X or 0 in X.

Examples:
Input: 1 ENTER 2 ENTER 1 ENTER 3 XEQ “NB”
Output in X: 6

Input: 6 ENTER 4 ENTER 5 ENTER 4 R/S
Output in X: 4

Input: 2 ENTER 5 ENTER 4 ENTER 5 R/S
Output in X: 0

For both contests…

Machines Eligible: Contest is for RPN machines only. Any RPN machine is allowable, but the functions used must be available on a vanilla HP-41CX. Users of an HP-41C or HP-41CV may use the extended functions module and/or time functions module if desired. No other plug-in roms allowed.

The winning routine(s): The shortest byte count program that displays the correct results.

Rules: (aka the fine print)
1) The decision of the judge is FINAL. No appeals are allowed to anyone or anything.
2) The purpose of this contest is to have fun and learn and at least two contestants must submit an entry.
3) Any already existing functionality in the machine is ok. The program must be keyable on a clear machine.
4) You must submit a machine with your program already keyed in to the judge AS WELL as a legible listing of your program with your name on the listing AND the machine. Provide the decimal byte count – if you don’t know how to get the byte count for an HP-41 program, this is a great time to learn! ☺ Machines with no names that are given to the judge are assumed to be gifts to the judge.
5) Submission must be made by the end of the contest (Time is TBA).
6) By submitting a program, you agree to allow it to be shared with the community.
7) This is a contest between individuals, not teams. One submittal <> one person.
8) You may not access the internet for any help in any fashion. Do not cheat in any way. Do not check the HP Museum Forum either.
9) You must be present to win.
10) If a point is unclear, ask immediately. Clarifications will be shared with the entire group during the conference.
11) Assume default machine settings after a master clear.
12) Happy Programming. Sorry for any stress! – Created by Gene Wright but not administered by him.