Greatest Common Denominator with User Input for the Casio fx-5800P Calculator
https://github.com/slugrustle/fx-5800P_progs

```
1   0→DimZ:
2   27→DimZ:
3   0→A:
4   "ENTER -1 AFTER  LAST INPUT":
5   While 1:
6      "NUMBER"?→B:
7      B=-1⇒Break:
8      If B≠Int(B):
9         Then Cls:
10        "NUMBER MUST BE  AN INTEGER":
11        Stop:
12     IfEnd:
13     If B<1 Or B≥1x₁₀10:
14        Then Cls:
15        "NUMBER MUST BE  >0 And <1x₁₀10":
16        Stop:
17     IfEnd:
18     A+1→A:
19     If A≤27:
20        Then B→Z[A]:
21     Else Cls:
22        "SUPPORTS AT MOST27 NUMBERS":
23        Stop:
24     IfEnd:
25  WhileEnd:
26  If A<2:
27     Then Cls:
28     "REQUIRES 2 OR   MORE NUMBERS":
29     Stop:
30  IfEnd:
31  A→D:
32  Z[D]→B:
33  For D−1→A To 1 Step -1:
34     Z[A]→C:
35     While B≠C:
36        If B≥C:
37           Then B−C×Int(B÷C)→B:
38           B=0⇒C→B:
39        Else C−B×Int(C÷B)→C:
40           C=0⇒B→C:
41        IfEnd:
42     WhileEnd:
43  Next:
44  1→C:
45  Int(D÷3)→E:
46  D−3×E>0⇒E+1→E:
47  Lbl 1:
48  Cls:
49  Locate 1,1,B:
50  Locate 12,1,C:
51  Locate 13,1,":":
52  Locate 14,1,E:
53  3×(C−1)+1→A:
54  Locate 1,2,Z[A]:
55  A+1≤D⇒Locate 1,3,Z[A+1]:
56  A+2≤D⇒Locate 1,4,Z[A+2]:
57  While 1:
58     Getkey→F:
59     If F=34 Or F=73:
60        Then Cls:
61        "DONE":
62        Stop:
63     IfEnd:
64     If F=77 Or F=84 Or F=86 Or F=47:
65        Then C+1→C:
66        C>E⇒1→C:
67        Goto 1:
68     IfEnd:
69     If F=67 Or F=83 Or F=85:
70        Then C−1→C:
71        C<1⇒E→C:
72        Goto 1:
73     IfEnd:
74  WhileEnd
```

Program Outline

Lines 1–2: Set up memory for extra variables $Z[\alpha]$ where $\alpha \in [1,27]$.

Lines 3–31: User input of arguments for GCD(Z[1], ..., Z[D]). $D \in [2,27]$.

Lines 32–43: Evaluate B = GCD(Z[1], ..., Z[D]). Uses $GCD(\beta,\gamma,\delta,\varepsilon) = GCD(GCD(GCD(\beta,\gamma),\delta),\varepsilon)$.

Lines 44–74: Display result and inputs.

Variable Descriptions

A: Index into extra variable memory.

B: User input and GCD evaluation.

C: GCD evaluation and number of displayed input argument page.

D: Number of input arguments.

E: Number of input argument display pages (3 inputs per page).

F: Identifier of most recently pressed key.

Notes
Lines 4, 10, 15, 22, and 28: The weird spacing prevents text wrapping from occurring in the middle of a word.

Line 13: The fx-5800P can only represent numbers on the range $[-1\times10^{10}, 1\times10^{10}]$ as exact integers.

Line 59: Pressing DEL (34) or EXIT (73) ends the program.

Line 64: Pressing + (77), ▲ (84), ▶ (86), or EXE (47) cycles to the next input argument display page.

Line 69: Pressing − (67), ◀ (83), or ▼ (85) cycles to the previous input argument display page.