$n = 7163$

For Steps 1-6 I used a program that helped me compute the table:

i	0	1	2	3	4	5
a_i	84	1	1	1	2	1
b_i	84	85	169	254	677	931
$b_i^2 \bmod n$	-107	62	-91	49	-103	38

We decompose the $b_i^2 \bmod n$ elements so we can choose a B.

$-107 = (-1) \cdot 107$ $\quad 49 = 7^2$

$62 = 2 \cdot 31$ $\quad -103 = (-1) \cdot 103$

$-91 = (-1) \cdot 7 \cdot 13$ $\quad 38 = 2 \cdot 19$

Step 7

By analysing the decompositions in prime factors, we choose B with bases that appear in at least two decompositions and with -1

Let $B = \{-1, 2, 7\}$

We write for each number their associate vectors.

Each vector is computed by putting the exponent mod 2 of each respective base from B.

$-107 \Rightarrow v_0 = (1,0,0)$ $\quad 49 \Rightarrow v_3 = (0,0,0)$

$62 \Rightarrow v_1 = (0,1,0)$ $\quad -103 \Rightarrow v_4 = (1,0,0)$

$-91 \Rightarrow v_2 = (1,0,1)$ $\quad 38 \Rightarrow v_5 = (0,1,0$

Step 10

We need to find b, which is the product of the b_i's of which vectors yielded sum 0

$$v_0 + v_1 + v_4 + v_5 = (1,0,0) + (0,1,0) + (1,0,0) + (0,1,0) = 0$$

We also compute c, which is the product of the bases involved (without -1) to the power found in the vectors /2

$$v_2 = \frac{1}{2}(1+1) = 1 \qquad v_7 = 0$$

$$\Rightarrow c = 2^1 \cdot 7^0 = 2$$

$$\Rightarrow b = (84 \cdot 85 \cdot 677 \cdot 331) \bmod 7163 = 1311$$

Step 11 $1311 \neq \pm 2 \bmod 7163$

$\Rightarrow$ $(b+c, n)$ or $(b-c, n)$ is a non-trivial factor of n

$(1313, 7163) = 13$ and $(1309, 7163) = 1$

So, we have 13 as a non trivial factor of 7163