9. The term from the rho method becomes 3.2×10^{12} times as great, while the term from the factor base method becomes 2.6×10^{6} times as great.
10. (a) For $s < s_0$, we have $h(s) \geq f(s) > f(s_0) = \frac{1}{2}h(s_0)$, and for $s > s_0$, we have $h(s) \geq g(s) > g(s_0) = \frac{1}{2}h(s_0)$. (b) Apply part (a) to $log(f(s))$ and $log(g(s))$.

§ **V.4.**

1. (a) $\frac{1}{1+}\frac{1}{1+}\frac{1}{44}$; (b) $\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+}\frac{1}{1+1}$; (c) $1+\frac{1}{7+}\frac{1}{1+}\frac{1}{2+}\frac{1}{4}$.
2. (a) Since $a+\frac{1}{x} = x$, it follows that x is the positive root of $x^2 - ax - 1 = 0$, i.e., $x = (a + \sqrt{a^2+4})/2$. (b) Since the a_i's are 1, the recurrence relation for the numerators and denominators of the convergents are the same as for the Fibonacci numbers.
3. $2+\frac{1}{1+}\frac{1}{2+}\frac{1}{1+}\frac{1}{1+}\frac{1}{4+}\frac{1}{1+}\frac{1}{1+}\frac{1}{6}\cdots$; it is possible to show that the a_i's for $i \equiv 2 \bmod 3$ are the successive even integers, and all other a_i's are 1.
4. For each b_i you have $b_i^2 - c_i^2 n$ is the least absolute residue of b_i^2 modulo n. If p divides this least absolute residue, then $b_i^2 \equiv c_i^2 n \bmod p$, and this means that n is a quadratic residue modulo p.
5. The tables below go through the first value of i such that the least absolute residues of $b_0^2, \ldots, b_i^2$ give a factorization of n. In four cases (parts (g), (i), (j), (k)) there is an earlier value of i such that some subset of these residues have corresponding vectors $\vec{\epsilon}_i$ which sum to zero; however, in those cases we end up with $b \equiv \pm c \bmod n$.

(a)

i	0	1	2	3
a_i	97	1	1	17
b_i	97	98	195	3413
$b_i^2 \bmod n$	-100	95	-11	44

$B = \{-1, 2, 5, 11\}$, $b = 97 \cdot 195 \cdot 3413$, $c = 2^2 \cdot 5 \cdot 11$, $g.c.d.(b+c, n) = 257$.

(b)

i	0	1	2	3
a_i	116	2	4	1
b_i	116	233	1048	1281
$b_i^2 \bmod n$	-105	45	-137	80

$B = \{2, 3, 5\}$, $b = 233 \cdot 1281$, $c = 2^2 \cdot 3 \cdot 5$, $g.c.d.(b+c, n) = 191$.

(c)

i	0	1	2
a_i	93	1	2
b_i	93	94	281
$b_i^2 \bmod n$	-128	59	-32

$B = \{-1, 2\}$, $b = 93 \cdot 281$, $c = 2^6$, $g.c.d.(b+c, n) = 67$.