Los dos algoritmos iterativos siguientes convergen al valor

$$\lim_{k\to\infty} x_k = \alpha = \sqrt{2}$$

para valores adecuados de la aproximación inicial x_0.

Algoritmo A [de orden 1].–

$$x_{k+1}^A = \frac{2 + x_k^A(10 - x_k^A)}{10}.$$

Algoritmo B [de orden 2].–

$$x_{k+1}^B = \frac{x_k^B}{2} + \frac{1}{x_k^B}.$$

Cálculo de la Raíz Cuadrada de 2

Comparación de algoritmos A y B

k	x_k^A	x_k^B
0	1,00000000000000	1,00000000000000
1	1,10000000000000	1,50000000000000
2	1,17900000000000	1,41666666666667
3	1,23999590000000	1,41421568627451
4	1,28623691679832	1,41421356237469
5	1,32079637618483	1,41421356237309
6	1,34634606945054	1,41421356237309
7	1,36508129557804	
8	1,37873660122434	
9	1,38864513966878	
10	1,39581160727621	
…	…	
20	1,41354549994603	
30	1,41418951325760	
40	1,41421269691064	
50	1,41421353122779	
60	1,41421356125227	
70	1,41421356233276	
80	1,41421356237164	
…	…	
90	1,41421356237304	
91	1,41421356237306	
92	1,41421356237307	
93	1,41421356237308	
94	1,41421356237308	
95	1,41421356237308	
96	1,41421356237309	
97	1,41421356237309	