Cálculo Numérico: Gabarito Método da Bissecção

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1. (a) $\bar{x} = 0, x_1 = 1, x_2 = 0, \varepsilon = 0$
   (b) $\bar{x} = -0.0625, x_1 = 1.5, x_2 = 0.25, x_3 = -0.375, x_4 = -0.0625, \varepsilon = 0.625$
   (c) $\bar{x} = 1.96875, x_1 = 2.25, x_2 = 1.875, x_3 = 2.0625, x_4 = 1.96875, \varepsilon = 0.1875$
   (d) $\bar{x} = -0.03125, x_1 = 0.25, x_2 = -0.125, x_3 = 0.0625, x_4 = -0.03125, \varepsilon = 0.1875$
   (e) $\bar{x} = 1.28125, x_1 = 1,75, x_2 = 1.375, x_3 = 1.1875, x_4 = 1.28125, \varepsilon = 0.1875$
   (f) $\bar{x} = -0.03125, x_1 = 0.25, x_2 = -1.25, x_3 = 0.0625, x_4 = -0.03125, \varepsilon = 0.1875$
   (g) $\bar{x} = 0.0490875, x_1 = -0.3927, x_2 = 0.19635, x_3 = -0.09815, x_4 = 0.0490875, \varepsilon = 0.294525$
2. (a)
   (b)
   (c)
   (d)
   (e)
   (f)
   (g)
3. **3**
4.
5.
6. Dividindo os tamanhos dos intervalos por 2, temos: $b_0 - a_0 = \pi \approx 3.1416, b_1 - a_1 = 1.5708, b_2, -a_2 = 0.7854, b_3 - a_3 = 0.3927, b_4 - a_4 = 0.19635, b_5 - a_5 = 0.098175, b_6 - a_6 = 0.0490875, b_7 - a_7 = 0.02454375, b_8 - a_8 = 0.012271875, b_9 - a_9 = 0.006135938, b_{10} - a_{10} = 0.003067969, b_{11} - a_{11} = 0.001533984, b_{12} - a_{12} = 0,000766992 < 10^{-3}$. Portanto, $k = 12$.
7. Mesmo raciocínio do exercício anterior, ≈ 5240 linhas , após $k = 10$ iterações.