Calculo Numérico

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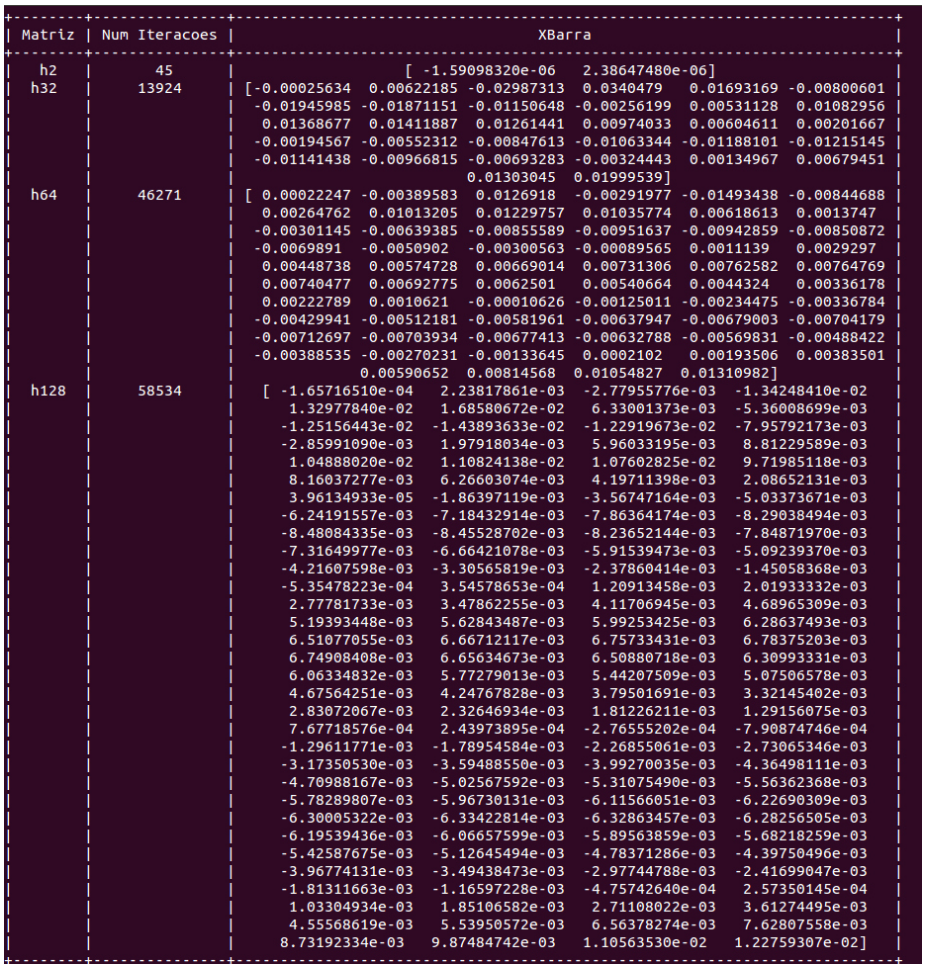
Novembro 2018

1 Respostas

- Questão 1
  - A Tem, por que pela regra de Cramer, não dá uma fração com denominador 0.
  - B Figura 1
  - C Figura 2 e 3
  - D 230.7669756412506 segundos
- Questão 2
  - A Figura 4
  - B Programa
  - C Programa
  - D 230.7669756412506 segundos
- Questão 3
  - – Figura 5

2 Imagens



Matriz	Num Iteracoes	XBarra
h2	45	[-1.59098320e-06 2.38647480e-06]
h32	13924	[-0.00025634 0.00622185 -0.02987313 0.0340479 0.01693169 -0.00800601 -0.01945985 -0.01871151 -0.01150648 -0.00256199 0.00531128 0.01082956 0.01368677 0.01411887 0.01261441 0.00974033 0.00604611 0.00201667 -0.00194567 -0.00552312 -0.00847613 -0.01063344 -0.01188101 -0.01215145 -0.01141438 -0.00966815 -0.00693283 -0.00324443 0.00134967 0.00679451 0.01303045 0.01999539]
h64	46271	[0.00022247 -0.00389583 0.0126918 -0.00291977 -0.01493438 -0.00844688 0.00264762 0.01013205 0.01229757 0.01035774 0.00618613 0.0013747 -0.00301145 -0.00639385 -0.00855589 -0.00951637 -0.00942859 -0.00850872 -0.0069891 -0.0050902 -0.00300563 -0.00089565 0.0011139 0.0029297 0.00448738 0.00574728 0.00669014 0.00731306 0.00762582 0.00764769 0.00740477 0.00692775 0.0062501 0.00540664 0.0044324 0.00336178 0.00222789 0.0010621 -0.00010626 -0.00125011 -0.00234475 -0.00336784 -0.00429941 -0.00512181 -0.00581961 -0.00637947 -0.00679003 -0.00704179 -0.00712697 -0.00703934 -0.00677413 -0.00632788 -0.00569831 -0.00488422 -0.00388535 -0.00270231 -0.00133645 0.0002102 0.00193506 0.00383501 0.00590652 0.00814568 0.01054827 0.01310982]
h128	58534	[-1.65716510e-04 2.23817861e-03 -2.77955776e-03 -1.34248410e-02 1.32977840e-02 1.68580672e-02 6.33001373e-03 -5.36008699e-03 -1.25156443e-02 -1.43893633e-02 -1.22919673e-02 -7.95792173e-03 -2.85991090e-03 1.97918034e-03 5.96033195e-03 8.81229589e-03 1.04888020e-02 1.10824138e-02 1.07602825e-02 9.71985118e-03 8.16037277e-03 6.26603074e-03 4.19711398e-03 2.08652131e-03 3.96134933e-05 -1.86397119e-03 -3.56747164e-03 -5.03373671e-03 -6.24191557e-03 -7.18432914e-03 -7.86364174e-03 -8.29038494e-03 -8.48084335e-03 -8.45528702e-03 -8.23652144e-03 -7.84871970e-03 -7.31649977e-03 -6.66421078e-03 -5.91539473e-03 -5.09239370e-03 -4.21607598e-03 -3.30565819e-03 -2.37860414e-03 -1.45058368e-03 -5.35478223e-04 3.54578653e-04 1.20913458e-03 2.01933332e-03 2.77781733e-03 3.47862255e-03 4.11706945e-03 4.68965309e-03 5.19393448e-03 5.62843487e-03 5.99253425e-03 6.28637493e-03 6.51077055e-03 6.66712117e-03 6.75733431e-03 6.78375203e-03 6.74908408e-03 6.65634673e-03 6.50880718e-03 6.30993331e-03 6.06334832e-03 5.77279013e-03 5.44207509e-03 5.07506578e-03 4.67564251e-03 4.24767828e-03 3.79501691e-03 3.32145402e-03 2.83072067e-03 2.32646934e-03 1.81226211e-03 1.29156075e-03 7.67718576e-04 2.43973895e-04 -2.76555202e-04 -7.90874746e-04 -1.29611771e-03 -1.78954584e-03 -2.26855061e-03 -2.73065346e-03 -3.17350530e-03 -3.59488550e-03 -3.99270035e-03 -4.36498111e-03 -4.70988167e-03 -5.02567592e-03 -5.31075490e-03 -5.56362368e-03 -5.78289807e-03 -5.96730131e-03 -6.11566051e-03 -6.22690309e-03 -6.30005322e-03 -6.33422814e-03 -6.32863457e-03 -6.28256505e-03 -6.19539436e-03 -6.06657599e-03 -5.89563859e-03 -5.68218259e-03 -5.42587675e-03 -5.12645494e-03 -4.78371286e-03 -4.39750496e-03 -3.96774131e-03 -3.49438473e-03 -2.97744788e-03 -2.41699047e-03 -1.81311663e-03 -1.16597228e-03 -4.75742640e-04 2.57350145e-04 1.03304934e-03 1.85106582e-03 2.71108022e-03 3.61274495e-03 4.55568619e-03 5.53950572e-03 6.56378274e-03 7.62807558e-03 8.73192334e-03 9.87484742e-03 1.10563530e-02 1.22759307e-02]

Figure 1: Tabela do Exercício 1- Item B

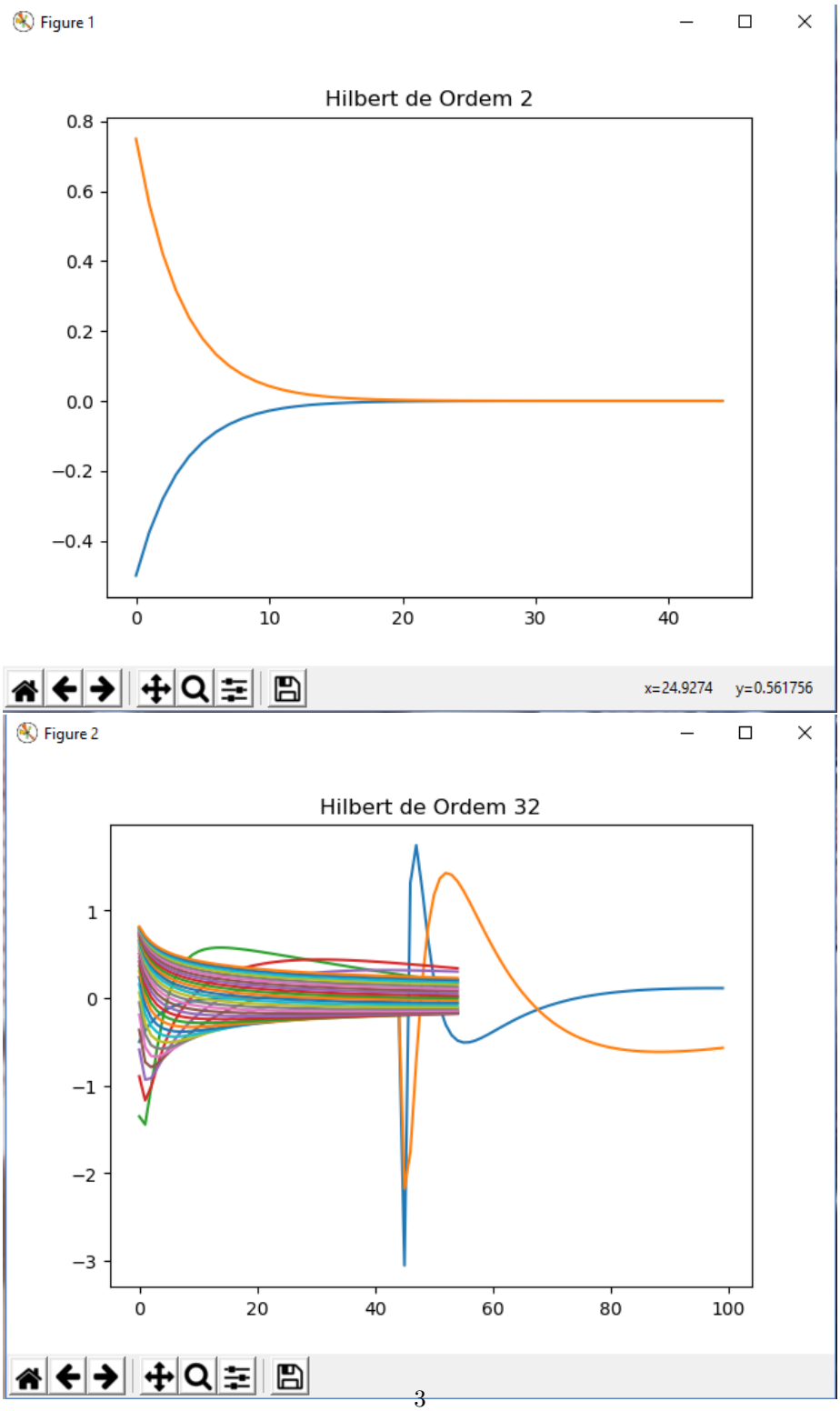


Figure 2: Gráficos do Exercício 1 - Item C, usando as ultimas 100 iterações

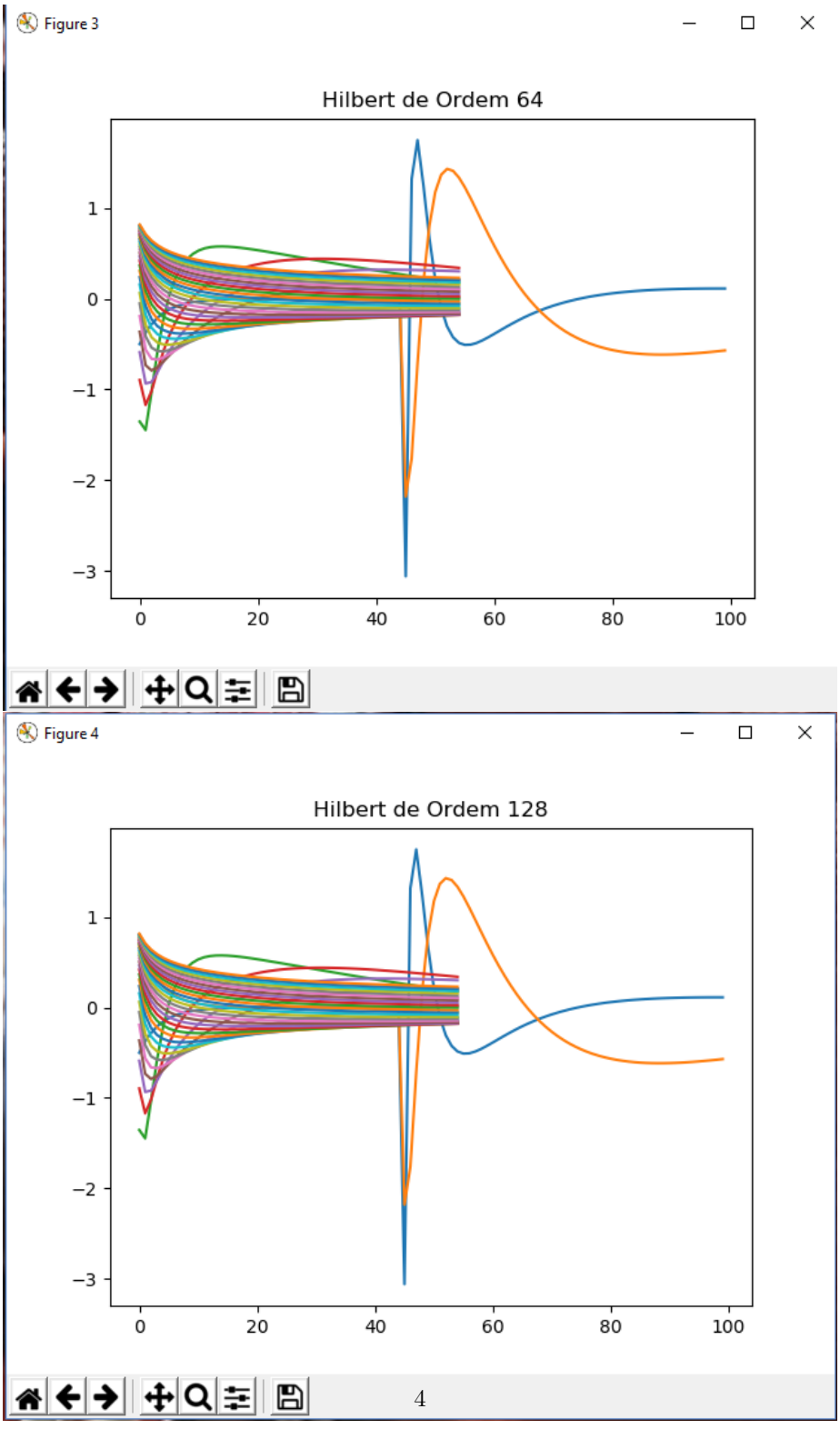


Figure 3: Gráficos do Exercício 1 - Item C, usando as ultimas 100 iterações

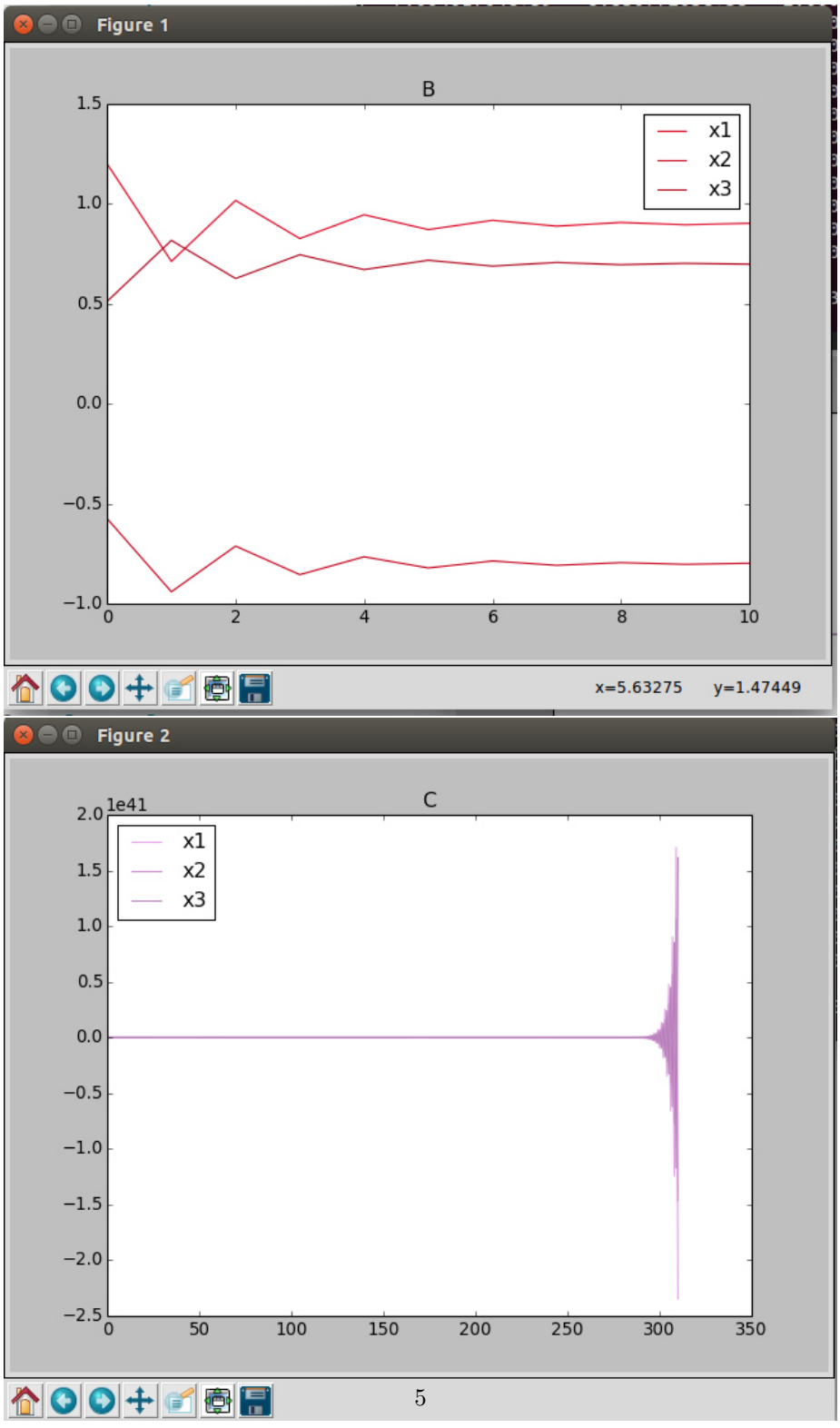


Figure 4: Gráficos do Exercício 2 - Item D

Método de Interpolação	2018	2019
Sistemas Linear	4072324	4076361
Interpolação Lagrange	7612414746	7681641011
Interpolação Newton	7611613184	7680819200

Figure 5: Tabela com os valores do Exercício 3