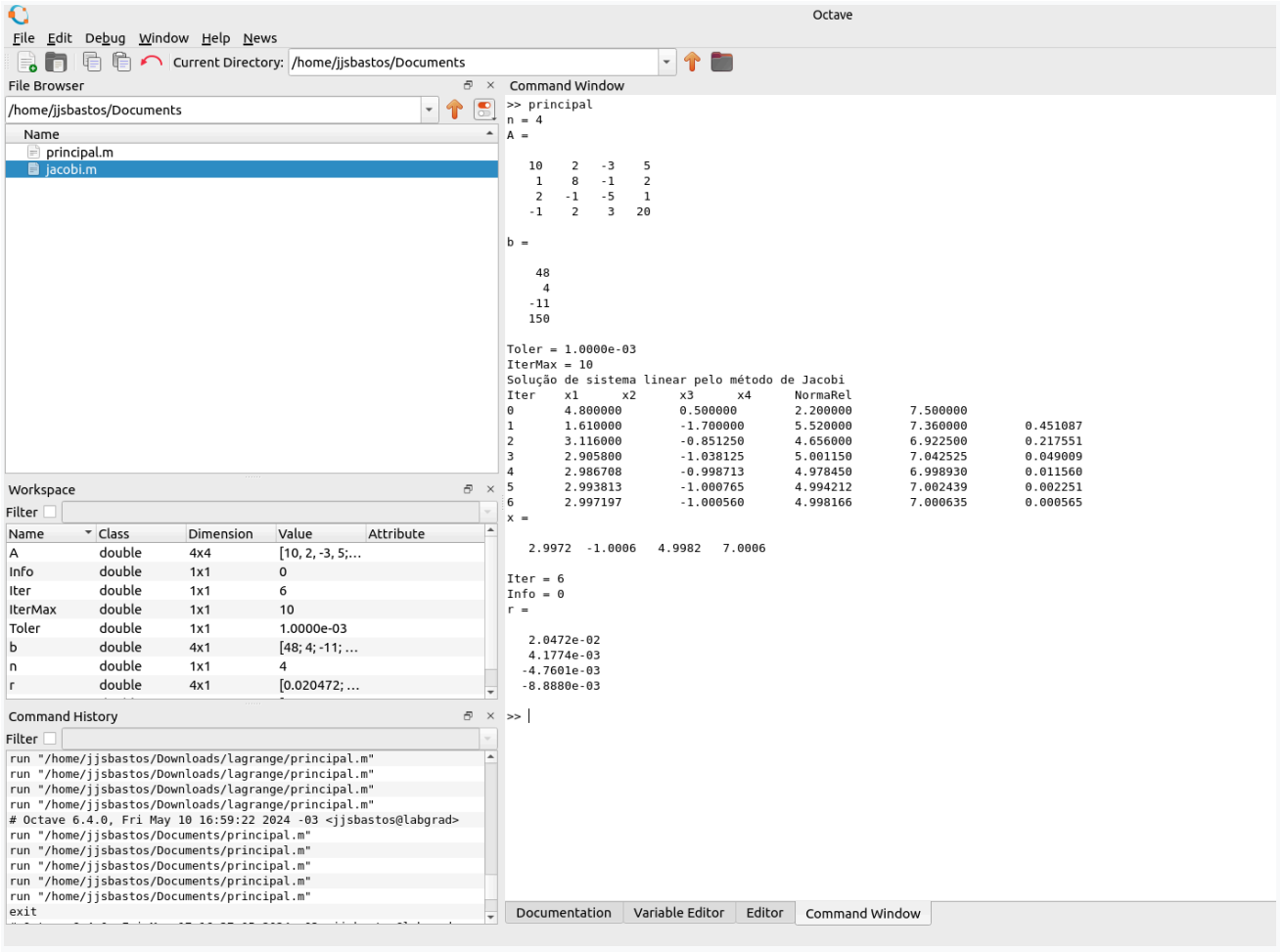
Resultados dos Algoritmos de Jacobi e de Gauss-Seidel

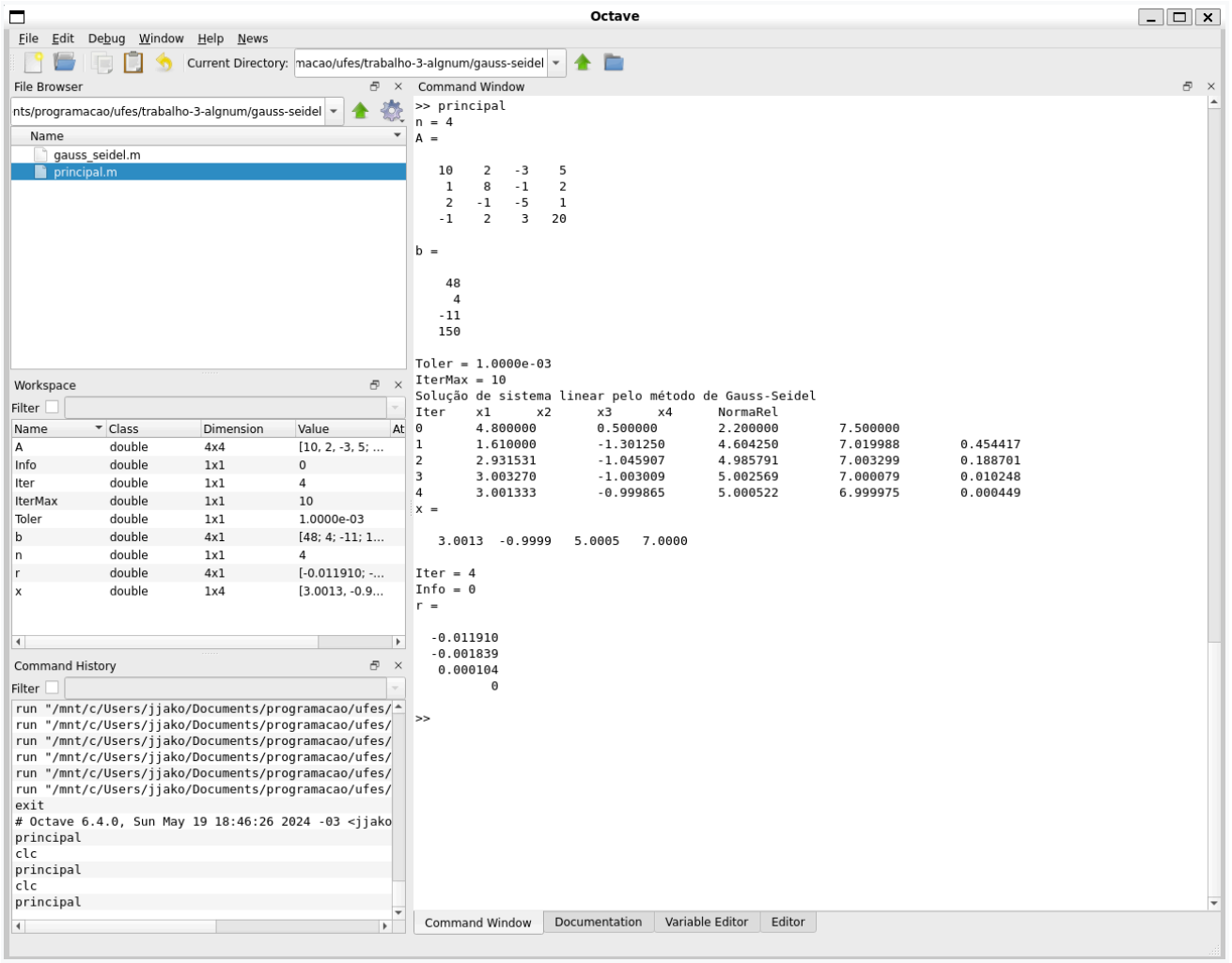
1) Resolver os sistemas lineares a seguir, utilizando os programas implementados, com Toler = 10^-3 ou IterMax = 10.

a) A = [10 2 -3 5; 1 8 -1 2; 2 -1 -5 1; -1 2 3 20]
b = [48; 4; -11; 150]

a) Jacobi

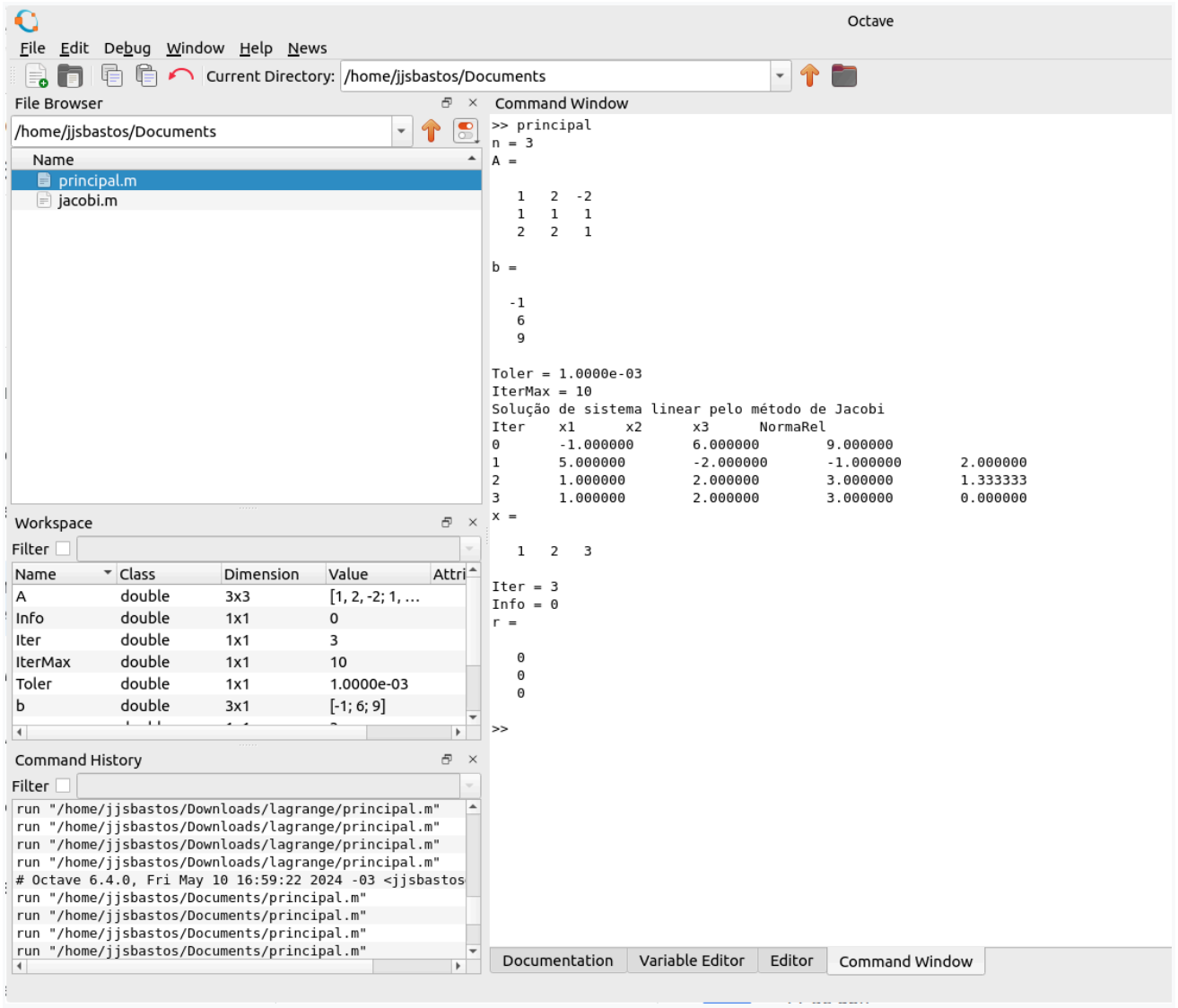


a) Gauss-Seidel

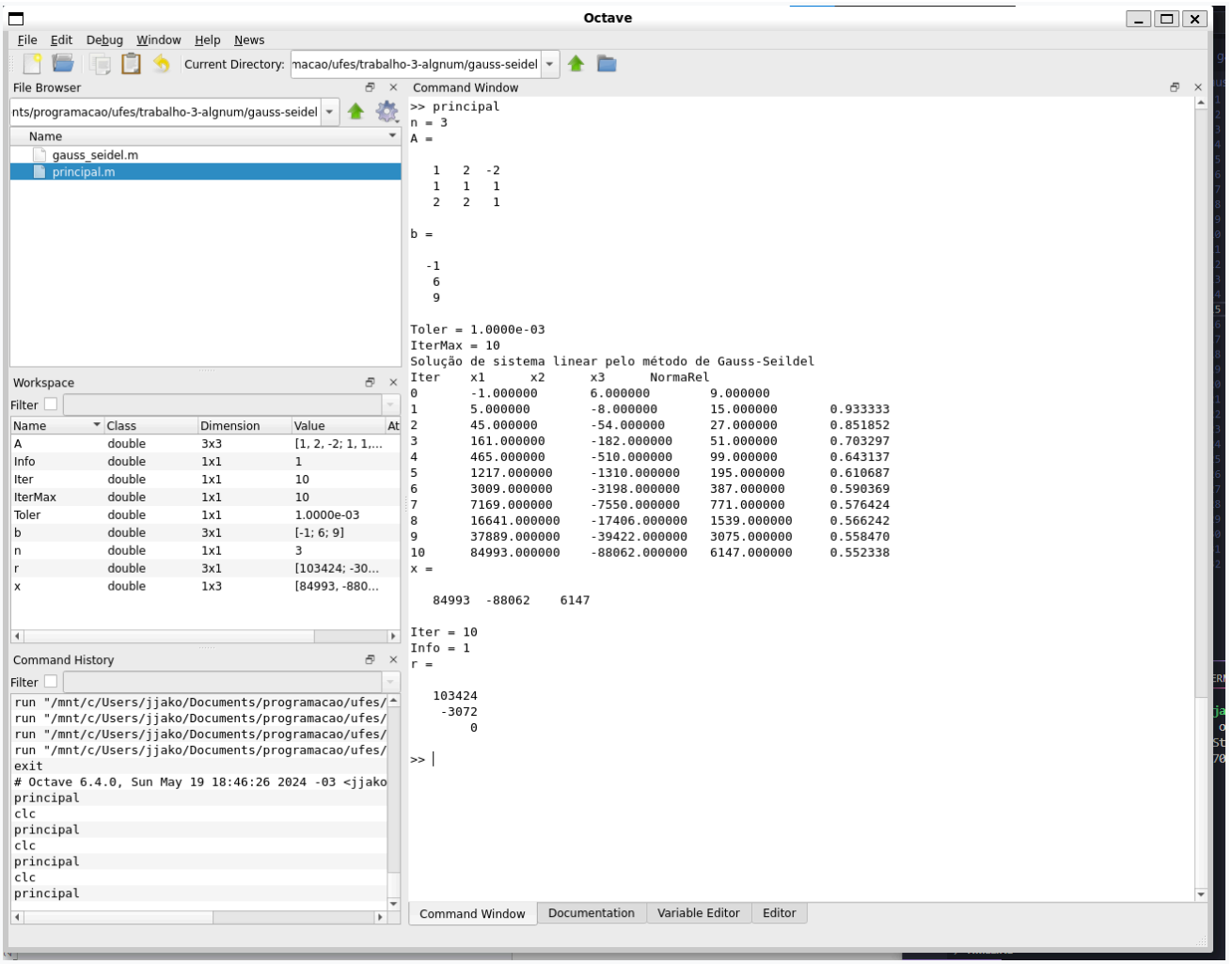


b) A = [1 2 -2; 1 1 1; 2 2 1]
b= [-1; 6; 9]

b) Jacobi

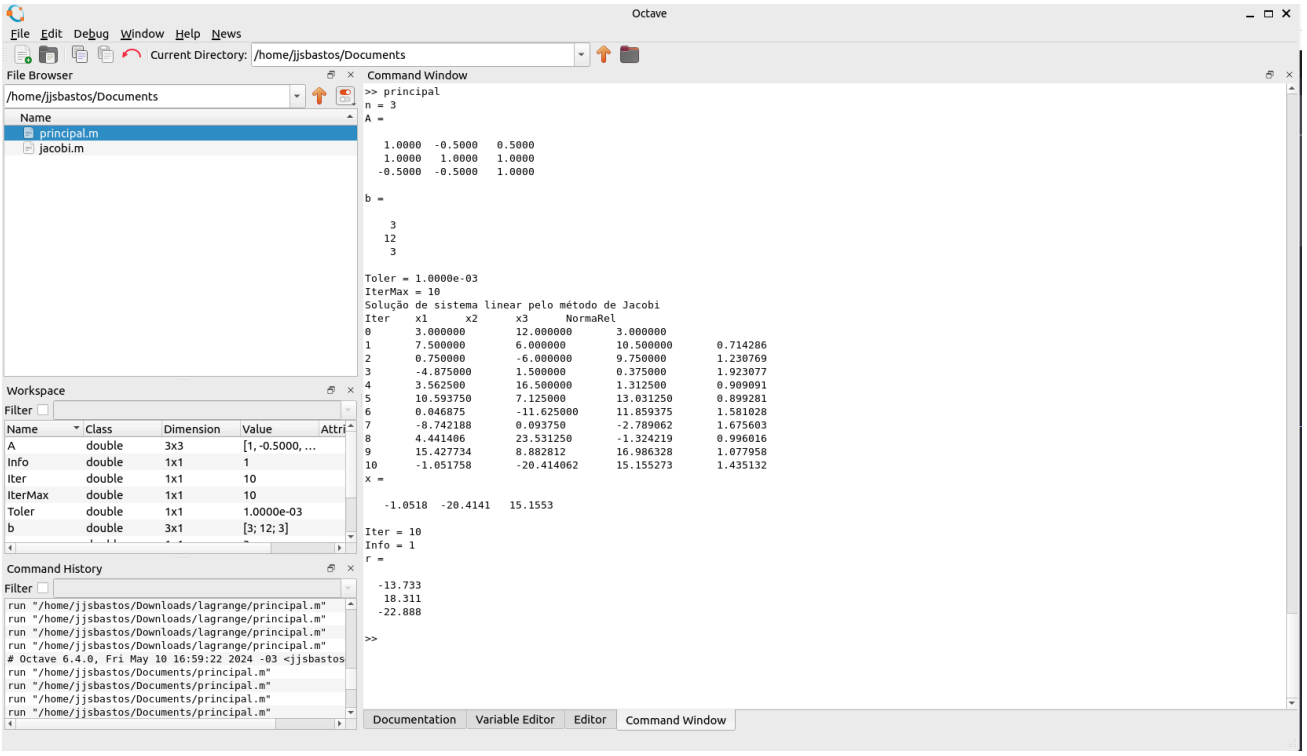


b) Gauss-Seidel

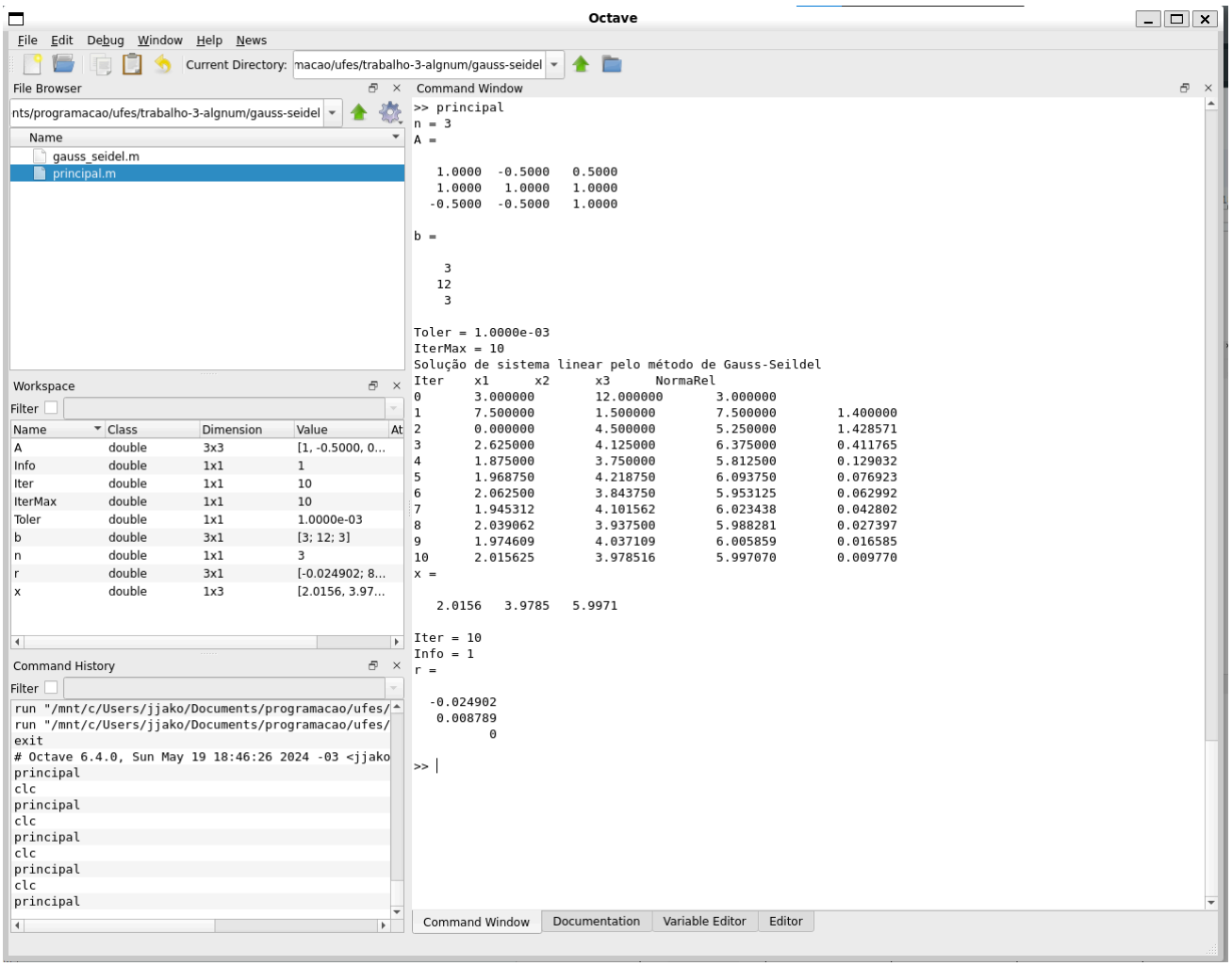


c) A = [1 -0.5 0.5; 1 1 1; -0.5 -0.5 1]
b = [3; 12; 3]

c) Jacobi



c) Gauss-Seidel



2) Comparar os números gastos de iterações, Iter, as informações sobre a convergência, Info, e os resíduos, r = b – A * x, das soluções dos sistemas lineares acima.

a) A = [10 2 -3 5; 1 8 -1 2; 2 -1 -5 1; -1 2 3 20]
b = [48; 4; -11; 150]

Método	Iter	Info	r
Jacobi	Iter = 6	Info = 0	r = 2.0472e-02 4.1774e-03 -4.7601e-03 -8.8880e-03
Gauss-Seidel	Iter = 4	Info = 0	r = -0.011910 -0.001839 0.000104 0

b) A = [1 2 -2; 1 1 1; 2 2 1]
b= [-1; 6; 9]

Método	Iter	Info	r
Jacobi	Iter = 3	Info = 0	r = 0 0 0
Gauss-Seidel	Iter = 10	Info = 1	r = 103424 -3072 0

c) A = [1 -0.5 0.5; 1 1 1; -0.5 -0.5 1]
b = [3; 12; 3]

Método	Iter	Info	r
Jacobi	Iter = 10	Info = 1	r = -13.733 18.311 -22.888
Gauss-Seidel	Iter = 10	Info = 1	r = -0.024902 0.008789 0