

Language: MATLAB

source code: problem_2d.m

After running the code, the values of different defined variables in the "Workspace" give us -

• Total no. of iterations, $k_{\max} = 308$

• After finding the element to element ratio of $b_{k_{\max}}$ ($b-k$ in the code) to v_{\max} (v_max in the code) and after normalizing the "element_ratio" vector we see that the "deviation" vector demonstrate that the difference of each element of normalized "element_ratio" vector from 1 is in the order of 10^{-4} at max while some elements are in the order 10^{-14} and some being zero.

Basically, this allows us to write,

$$b_{k_{\max}} = 4.9819 \times v_{\max}$$

maximum element
to element ratio
for vectors $b-k$
to v_max

$$\therefore b_{k_{\max}} \propto v_{\max}$$

- Similarly, after finding the element to element difference between $\underline{M} \vec{b}_{kmax}$ and $\lambda_{max} \vec{b}_{kmax}$ we check the vector "error" and find out that all the differences are in the order of 10^{-6} or smaller. So, this allows us to say.

$$\underline{M} \vec{b}_{kmax} \approx \lambda_{max} \vec{b}_{kmax}$$