

Homework #3

1)

The solution to the system of equations given by the routine is

$$x_1 = 4.0, \ x_2 = 1.0, \ x_3 = -3.0, \ x_4 = 4.0$$

2)

The solution to the tridiagonal system of 100 equations is,

$$\begin{aligned} X1 &= 5.900990, X2 = 4.198020, X3 = 5.702970, X4 = 4.396040, X5 = 5.504950, \\ X6 &= 4.594059, X7 = 5.306931, X8 = 4.792079, X9 = 5.108911, X10 = 4.990099, \\ X11 &= 4.910891, X12 = 5.188119, X13 = 4.712871, X14 = 5.386139, X15 = 4.514851, \\ X16 &= 5.584158, X17 = 4.316832, X18 = 5.782178, X19 = 4.118812, X20 = 5.980198, \\ X21 &= 3.920792, X22 = 6.178218, X23 = 3.722772, X24 = 6.376238, X25 = 3.524752, \\ X26 &= 6.574257, X27 = 3.326733, X28 = 6.772277, X29 = 3.128713, X30 = 6.970297, \\ X31 &= 2.930693, X32 = 7.168317, X33 = 2.732673, X34 = 7.366337, X35 = 2.534653, \\ X36 &= 7.564356, X37 = 2.336634, X38 = 7.762376, X39 = 2.138614, X40 = 7.960396, \\ X41 &= 1.940594, X42 = 8.158416, X43 = 1.742574, X44 = 8.356436, X45 = 1.544554, \\ X46 &= 8.554455, X47 = 1.346535, X48 = 8.752475, X49 = 1.148515, X50 = 8.950495, \\ X51 &= 0.950495, X52 = 9.148515, X53 = 0.752475, X54 = 9.346535, X55 = 0.554455, \\ X56 &= 9.544554, X57 = 0.356436, X58 = 9.742574, X59 = 0.158416, X60 = 9.940594, \\ X61 &= -0.039604, X62 = 10.138614, X63 = -0.237624, X64 = 10.336634, X65 = -0.435644, \\ X66 &= 10.534653, X67 = -0.633663, X68 = 10.732673, X69 = -0.831683, X70 = 10.930693, \\ X71 &= -1.029703, X72 = 11.128713, X73 = -1.227723, X74 = 11.326733, X75 = -1.425743, \\ X76 &= 11.524752, X77 = -1.623762, X78 = 11.722772, X79 = -1.821782, X80 = 11.920792, \\ X81 &= -2.019802, X82 = 12.118812, X83 = -2.217822, X84 = 12.316832, X85 = -2.415842, \\ X86 &= 12.514851, X87 = -2.613861, X88 = 12.712871, X89 = -2.811881, X90 = 12.910891, \\ X91 &= -3.009901, X92 = 13.108911, X93 = -3.207921, X94 = 13.306931, X95 = -3.405941, \\ X96 &= 13.504950, X97 = -3.603960, X98 = 13.702970, X99 = -3.801980, X100 = 13.900990 \end{aligned}$$