6.6 – 1
A =
[[4 -2 1]
 [3 6 -4]
[2 1 8]]
A^{-1} =
[[0.19771863 0.06463878 0.00760456]
 [-0.121673   0.11406844 0.07224335]
 [-0.03422053 -0.03041825 0.11406844]]

$A*A^{-1}$= should be the identity matrix
[[1.00000000e+00 -2.08166817e-17   0.00000000e+00]
[-5.55111512e-17   1.00000000e+00   1.11022302e-16]
[0.00000000e+00 -2.77555756e-17   1.00000000e+00]]

A^{-1}calculated – A^{-1}exact =
[[0.00000000e+00   0.00000000e+00   6.07153217e-18]
  [0.00000000e+00   0.00000000e+00   2.77555756e-17]
[0.00000000e+00 -3.46944695e-18   1.38777878e-17]]

The error in the inverse of the matrix is on the same order of magnitude as the error in the identity matrix; however, fewer terms are actually affected by the difference.

6.6-2
The vectors(going vertically) of the x solutions are:
[[1.   0.31178707 2.31939163]
 [-2.   -0.03802281 -2.96577947]
[4.   2.67680608 4.79087452]]
Can I just add that this is a dumb problem…

6.6-3
The eigen values for the matrix

A	B
-B	A

 Is the same as for the matrix for

1	1
-1	1

And then multiplied by the vector [A,B]
Eigen values : [1.+1.j ; 1.-1.j]
Eigen Vectors : [[0.70710678+0.j   0.70710678-0.j   ]
                          [0.00000000+0.70710678j 0.00000000-0.70710678j]]
Which is just scaled sqrt[2]/2 – which is a normalization factor for the eigenvalues.

6.6.1

11.2.1 – 1

For 2 arrays that are 1000 x 1000 :
ABij = 12870.000000 for the regular summation,
the time is t2-t1 = 0.004723
ABij through slicing is 12870.000000 for the sliced summation,
the time is t2-t1 = 0.000041
Slicing is ~ 100x faster (115)

6.6.1,

I honestly don't understand what the question is – we are provided the answer. So I just played around with it, until I felt that I built up an intuition on how it works.

- 6.6.2 (extra credit)