**1.What is the characteristic polynomial of A?**

]

**2. What are the roots of the characteristic polynomial of A?**

By the equation above, 1=-1,2=3.

**3.What are the eigenvalues of A?**

1=-1,2=3.

**4.What are the eigenvectors of A?**

=-1:

]=0, then

=3:

]=0, then

**5.Perform one iteration of power iteration on A, using x0=[1,1]T as starting** **vector**

**6. To what eigenvector of A will power iteration ultimately converge?**

It will finally converge to

**7.What eigenvalue estimate is given by the Rayleigh quotient, using the** **vector x=[1,1]T?**

**8.To what eigenvector of A would the inverse iteration ultimately converge?**

It will converge to the eigenvector that correspond to the smallest eigenvalue of A, that is

**9. What eigenvalue of A would be obtained if inverse iteration were used with** **shift σ=2?**

It will obtain the eigenvalue that is the closest to σ, that is 3.

**10.If QR iteration were applied to A, to what form would it converge: diagonal** **or triangular? Why?**

A is not symmetric, so it will not converge to diagonal, but converge to triangular.