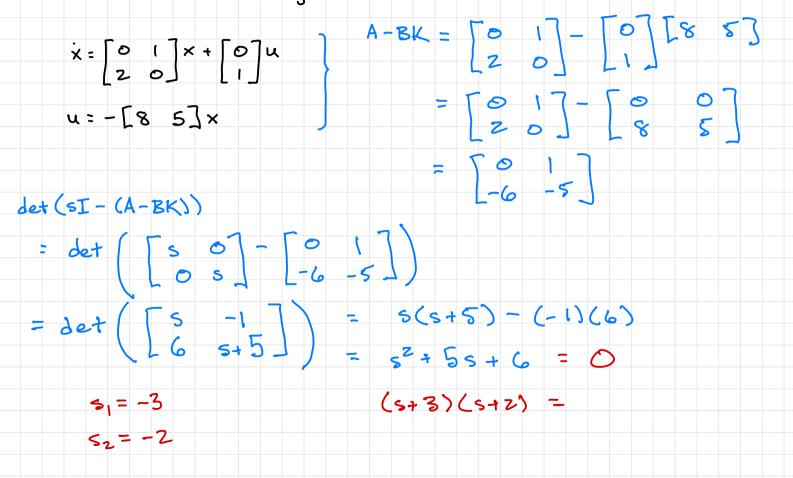
Eigenvalue placement

AE353 Spring ZOZ5 Bretl  $\dot{m} = f(m, n)$ 

- Linearize about equilibrium point me, ne x = Ax + Bu where x = m-me and u = n-me Lapply linear state feedback u=-Kx
- \* = (A-BK) ×

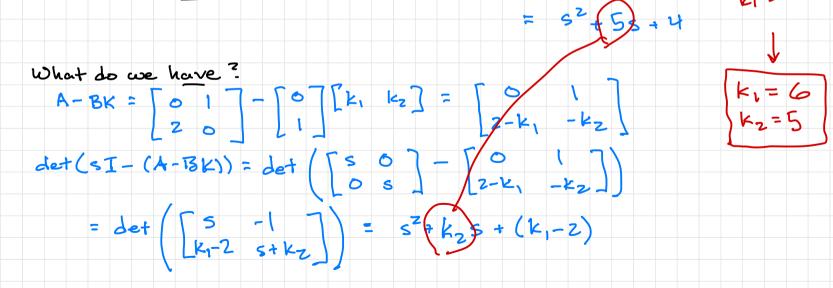
asymptotically stable if all eigenvalues of this matrix have negative real part

The eigenvalues of a matrix are the roots of its characteristic polynomial



One way to place eigenvalues is to equate coefficients of the characteristic polynomial

What do we want? (5-(-1))(s-(-4)) = (s+1)(s+4) k-2=4



It is possible to automate the process of eigenvalue placement

See python demo