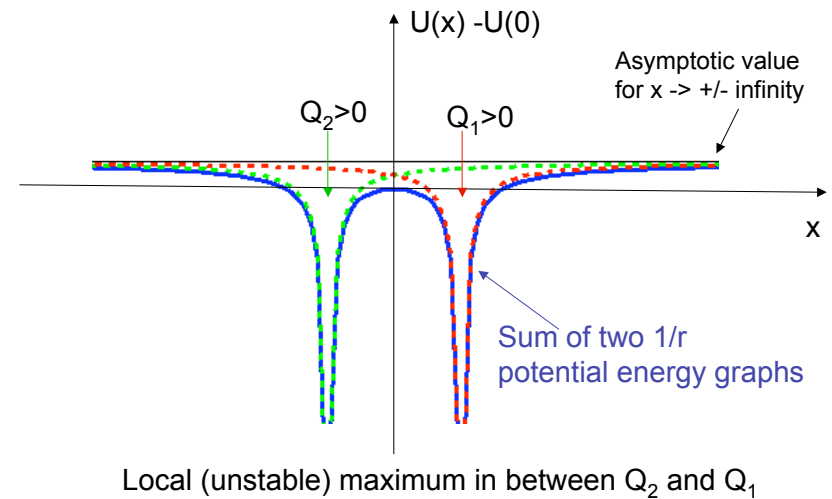


Updated solutions for 8.02x
practice quizzes 1a and 1b

Practice Quiz 1a, problem 1, part b:
Potential energy of negative charge Q_0 as a function of x



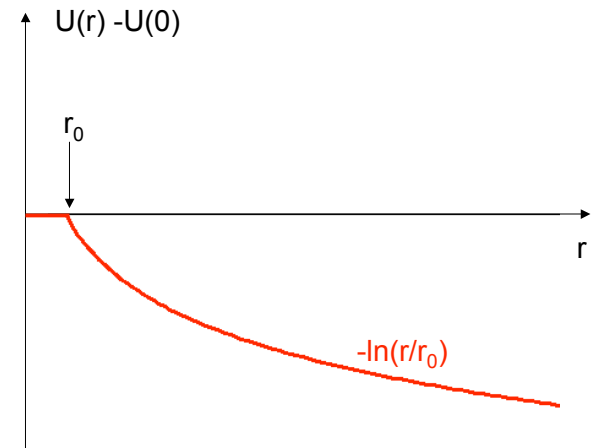
Practice Quiz 1a, problem 3, part b:

Consider the external field as shown on the solutions:

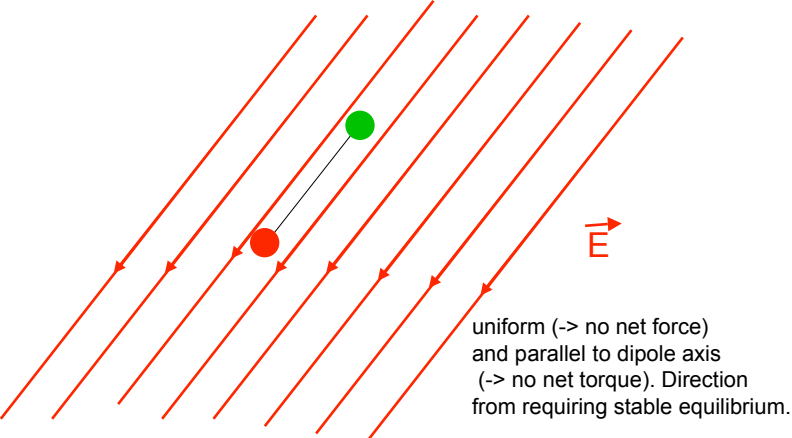
The positive charge feels a force towards $-x$, the negative charge feels a force towards $+x$. Because the external field at the pos. charge is bigger (denser field lines), the net force will be towards $-x$, if both charges have the same magnitude. Note that the field of the two dipole charges does not play a role - the dipole can't exert a net force on itself.

Increasing the negative charge will increase the force on the negative charge in $+x$ direction, until eventually the net force on the dipole is in $+x$. Unlike what it says in the solutions, the net torque will not reverse and the dipole is still in a stable orientation.

Practice Quiz 1a, problem 4, part c:



Practice Quiz 1b, problem 3, part a:



Practice Quiz 1b, problem 4, part c:

