**Math 207C**
**Homework 3**
**Due Friday, April 27th**

1. Compute the swimming speed of an undulating sheet moving at zero Reynolds number between two walls on which the velocity is zero (in lab frame) located at $y = \pm L$ in the limit of low amplitude. In the reference frame moving with the swimmer, the shape of the swimmer is $y = A\sin(kx - \omega t)$.

   We will additionally assume there is no net force on the system. In the semi-infinite domain case, we excluded terms from the streamfunction proportional to $y^2$ and $y^3$ to avoid unbounded flow at infinity. In the finite domain case, we also must exclude these terms because these terms only arise when there is a net force on the body.