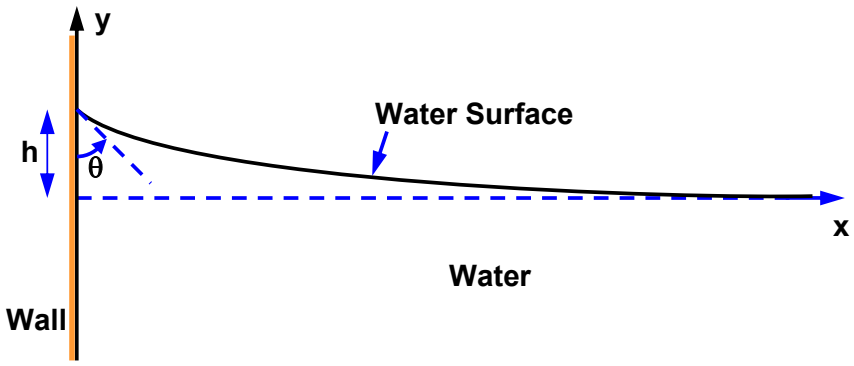
## Problem 108D

A plane wall is immersed in a large body of liquid of density $\rho$ which is at rest:




The surface tension of the liquid surface is denoted by $S$ and the contact angle with the wall by $\theta$. Find the equation of the water surface in the form $y = f(x)$ ; the function should contain the quantities $S$, $\theta$, $\rho$ and the acceleration due to gravity, $g$. To simplify the problem assume that the curvature of the water surface can be approximated by $d^2y/dx^2$. Find the height, $h$, in terms of $S$, $\theta$, $\rho$ and $g$.