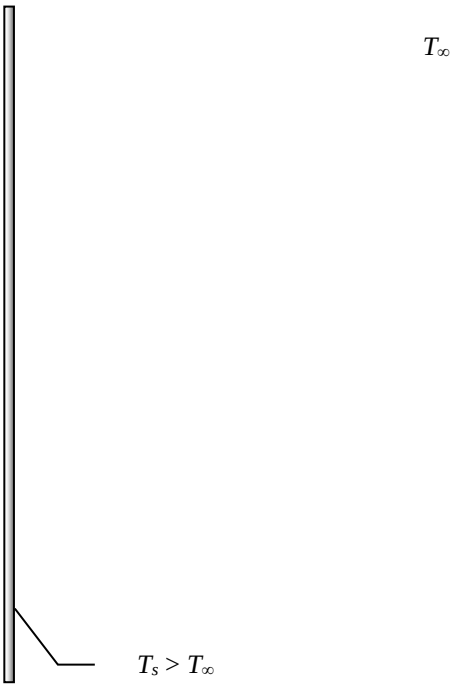
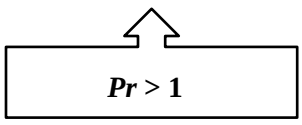
ACTIVE LEARNING EXERCISE—Natural convection boundary layers

Remember that one interpretation of Prandtl number is a measure of the relative thickness of a momentum (velocity) boundary layer to a thermal boundary layer. With this thought in mind,

1. sketch the momentum and thermal boundary layers for natural convection on a vertical wall with $T_s > T_\infty$ if $Pr > 1$. Include the variation of velocity and temperature across the layers.





2. Sketch the momentum and thermal boundary layers for natural convection on a vertical wall with $T_s > T_\infty$ if $Pr < 1$. Include the variation of velocity and temperature across the layers.