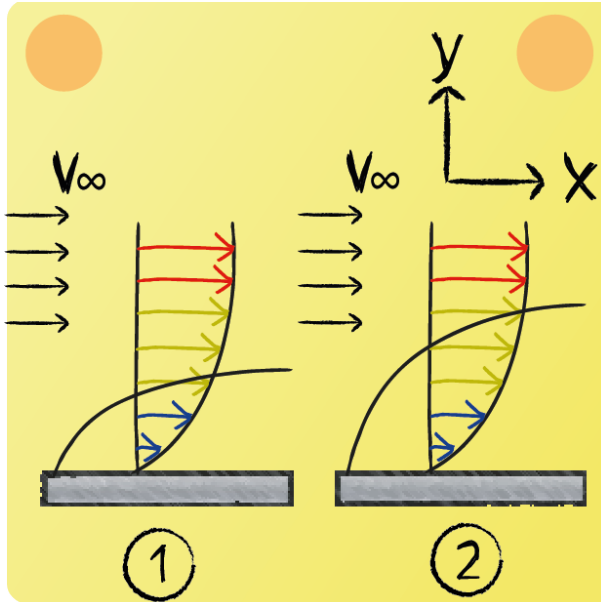


Lecture 2 - Question 6



Consider the following two viscous boundary layers, for which $v_w = 0$ and v_∞ are identical. Which of the two plates will experience a higher shear stress? Assume an ideal gas.



Situation 2 has a bigger viscous boundary layer and the kinematic viscosity for that flow is bigger. This means that the velocity gradient normal to the plate is higher, thus the shear stress, which is directly dependant of the velocity gradient, will also be higher.