## Problem 354A

Consider the planar or two-dimensional equivalent of a rocket engine exhaust as shown below. The flow exits the diffuser at a Mach number of 3.5. Because the surrounding atmospheric pressure is higher than the pressure of the exit jet, the engine is operating in an overexpanded mode and, hence, oblique shock waves occur emanating from the edges of the exit. These weak oblique shock waves are inclined at $\beta = 25°$ to the exhaust jet:
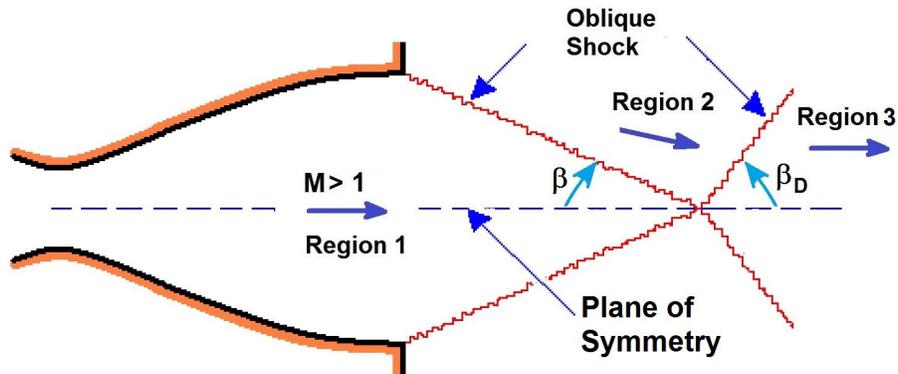
(1) The Mach number and direction of flow in the region 2.

(2) When the original oblique shocks meet two other weak oblique shocks are formed. Find the angle of inclination, β_D, of these shocks.