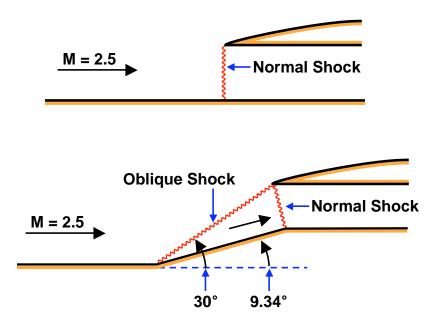## Problem 352D

Two engine intake designs for a supersonic airplane are to be studied to determine the pressure, p_e, in the engine (downstream of the normal shock in both cases shown below). The first design, shown in the upper sketch, simply compresses the flow through a normal shock wave, whereas the second design, shown in the lower sketch, involves a weak oblique shock ahead of a normal shock wave.

If the Mach number of the oncoming flow is 2.5, find, for both designs, the ratio of the engine pressure, p_e, to the ambient pressure, p_a, in the oncoming flow.