Solution to Problem 352C:
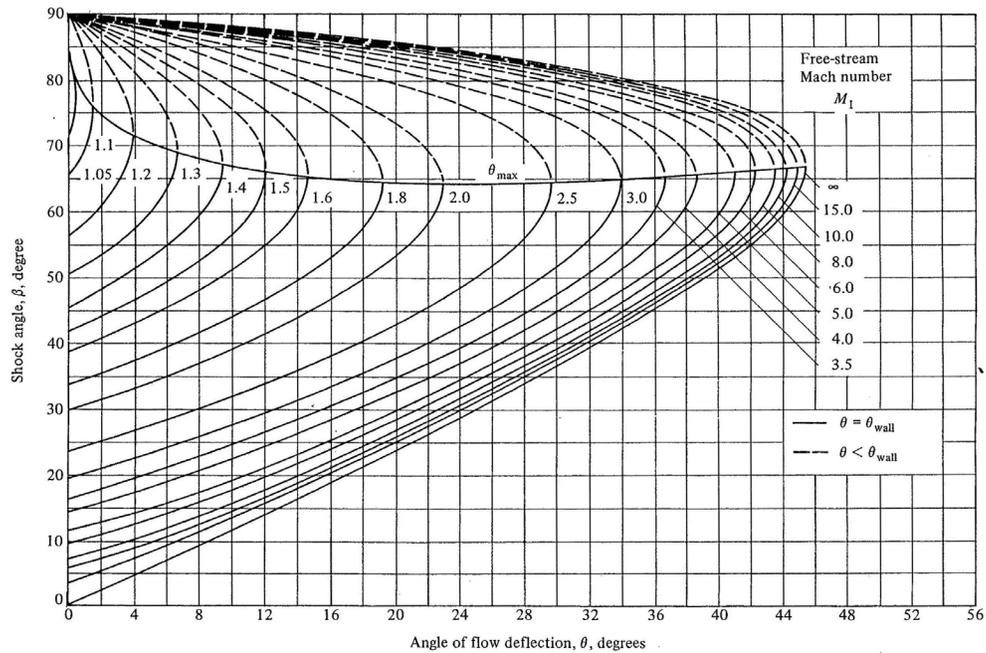

FIG. 11-A The relation between wave angle β and deflection angle θ for the flow of air ($\gamma = 1.4$) through an oblique shock at various free-stream Mach numbers M_1. (From *NACA TN 1373*.)

From the above oblique shock graph we note that for an angle of flow deflection of $\theta = 30°$, the critical Mach number above which the oblique shocks no longer remain attached to the apex of the wedge is $M \approx 2.55$. The inclination of the oblique shock at this condition is about $64°$.