N1. A thin cylindrical shell is 3 m long and 1m in internal diameter. It is subjected to internal pressure of 1.2 MPa. If the thickness of the sheet is 12 mm, find the circumferential stress, longitudinal stress, changes in diameter, length and volume . Take E=200 GPa and μ= 0.3.

σ_C= 50 MPa (Tensile).

σ_L=25 MPa (Tensile).

Change in diameter, δd= 0.2125 mm (Increase).

Change in length = 0.15 mm (Increase).

Change in volume dv= 1.119x10^-3 m3