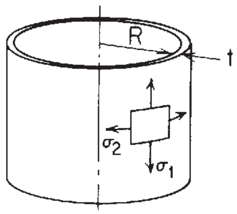
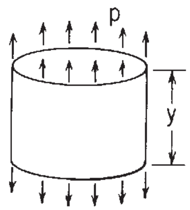
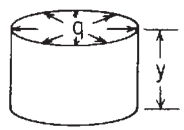
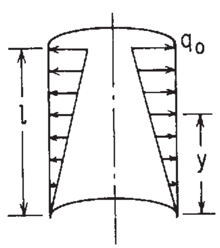
Case no., form of vessel	Manner of loading	Formulas
1. Cylindrical  $\frac{R}{t} > 10$	1a. Uniform axial load, p force/unit length 	$\sigma_1 = \frac{p}{t}$ $\sigma_2 = 0$ $\Delta R = \frac{-p\nu R}{Et}$ $\Delta y = \frac{py}{Et}$ $\psi = 0$
	1b. Uniform radial pressure, q force/unit area 	$\sigma_1 = 0$ $\sigma_2 = \frac{qR}{t}$ $\Delta R = \frac{qR^2}{Et}$ $\Delta y = \frac{-qR\nu y}{Et}$ $\psi = 0$
	1c. Uniform internal or external pressure, q force/unit area (ends capped)	At points away from the ends $\sigma_1 = \frac{qR}{2t}$ $\sigma_2 = \frac{qR}{t}$ $\Delta R = \frac{qR^2}{Et}\left(1 - \frac{\nu}{2}\right)$ $\Delta y = \frac{qRy}{Et}(0.5 - \nu)$ $\psi = 0$
	1d. Linearly varying radial pressure, q force/unit area 	$q = \frac{q_0 y}{l}$ (where y must be measured from a free end. If pressure starts away from the end, see case 6 in Table 13.2) $\sigma_1 = 0$ $\sigma_2 = \frac{qR}{t} = \frac{q_0 R y}{lt}$ $\Delta R = \frac{qR^2}{Et} = \frac{q_0 R^2 y}{Etl}$ $\Delta y = \frac{-q_0 R \nu y^2}{2Etl}$ $\psi = \frac{q_0 R^2}{Etl}$