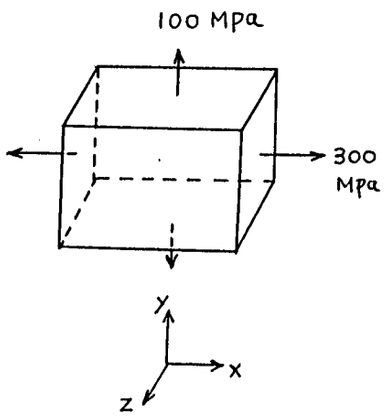
1.

(30%) 一板塊受右圖所示之應力狀態。

(a) 繪 Mohr's circle of stress states.

(b) 在你的答案紙重複繪製右圖，並在所繪之板塊上繪 Maximum Shear Stress 之平面。

(c) 計算此 Maximum Shear stress。



2. 一物体受到 P_1, P_2, ···, P_i, ··· 之作用力，此作用力於作用点處 (30%) 分別產生 δ_1, δ_2, ···· , δ_i, ···· 之位移（δ_1, δ_2, ···, δ_i, ···分別平行於作用力 P_1, P_1, ···, P_i, ··· 之方向）。設 U^* 為 Complementary energy, 請証明 Castigliano's Theorem：

$$\frac{\partial U^*}{\partial P_i} = \delta_i$$

3. A beam is loaded as shown. This beam (40%) has a simple support at A and a built-in support at C. The bending modulus EI is constant along the length of the beam. It is desired to calculate and sketch the bending-moment diagram due to the load P.