



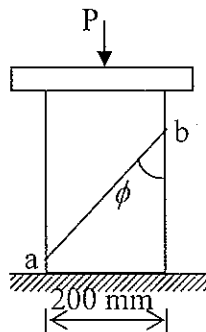
考試科目： 材料力學

系所名稱： 材料工程研究所碩士班乙組

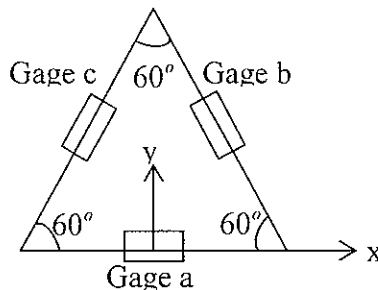
※可使用計算器

1. 答案以橫式由左至右書寫。2. 請依題號順序作答。

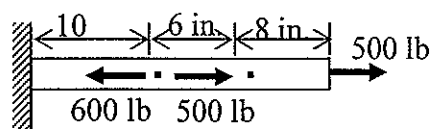
1. The shearing stress on plane a-b of the 100×200 mm rectangular block shown in the following fig. is 15 Mpa when the axial load P is applied. If the angle ϕ is 30° , determine (a) the load P, and (b) the normal stress on plane a-b. (25%)



2. At a point on the free surface of an aluminum ($E = 73$ GPa and $\nu = 0.33$) machine part, the strain rosette shown in the Fig. was used to obtain the following strain data: $\epsilon_a = +875 \mu m/m$, $\epsilon_b = +700 \mu m/m$, and $\epsilon_c = -650 \mu m/m$. Determine the stress components σ_x , σ_y , and τ_{xy} . (25%)



3. A flat 1×2 - in. bar of aluminum alloy ($E = 10000$ Ksi) is subjected to the axial loads shown in the Fig. Determine the change in length of the bar. (25%)



4. A beam is loaded and supported as shown in the Fig. Determine the reactions at the supports A and C. (25%)

