

淡江大學 109 學年度日間部寒假轉學生招生考試試題

系別：土木工程學系三年級

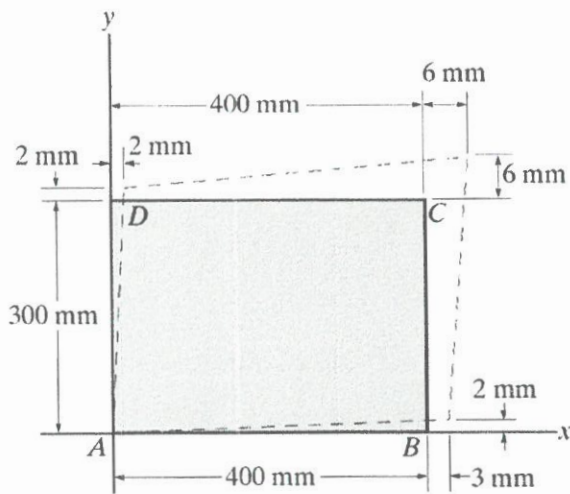
科目：材料力學

13-13

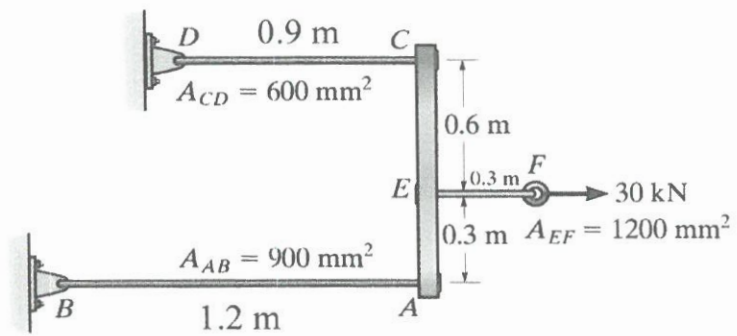
考試日期：1 月 18 日(星期一) 第 1 節

本試題共 4 大題， 1 頁

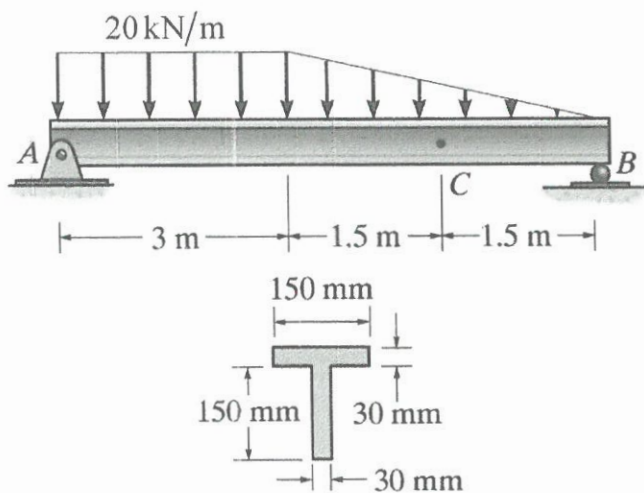
1. The rectangular plate is deformed into the shape shown by the dashed lines. Determine the average normal strains along diagonal AC and diagonal BD, and the average shear strain at corner A relative to the x, y axes. (24%) (算夾角請用小應變分析假設來計算)
2. The assembly consists of three rods ($E = 120 \text{ GPa}$) and a rigid bar AC. The cross-sectional area of each rod is given in the figure. If a force of 30 kN is applied to the ring F, determine the horizontal displacement of points C, A and F. (24%)
3. Determine the maximum bending stress and the maximum shear stress in the T-beam at point C. Show the results in terms MPa. (24%)
4. Draw Mohr's circle (4%) that describes each of the following states of stress. (Please write down the position of the following states of stress (4%) and center (4%), radius (4%) of the Mohr's circle. Please determine the principle stresses. (4%) Determine the equivalent state of stress of stress if an element is oriented 30° counterclockwise from the element and draw the new state in Mohr's circle (8%).



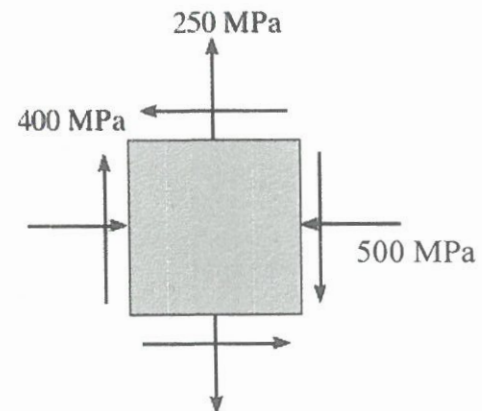
Problem 1



Problem 2



Problem 3



Problem 4