

103 學年度四年制二、三年級轉學生招生考試

四技二年級 土木工程系

第一節 工程靜力學 試題

第一頁 共一頁

注意事項：

1. 本試題共 4 題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Please determine the equivalent resultant force and couple moment at point O , shown in Fig. 1. (25 分)

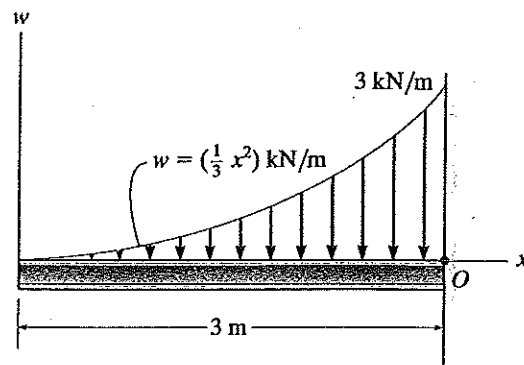


Fig. 1

2. Determine the stretch in each of the two springs required to hold the 60 kg crate in the equilibrium position shown in Fig. 2. Each spring has an un-stretched length of 2 m and a stiffness of $k=300$ N/m. (25 分)

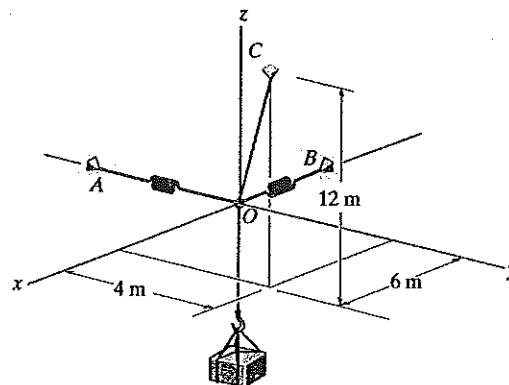


Fig. 2

3. Determine the moment of inertia for the shaded area about the y axis shown in Fig. 3. (25 分)

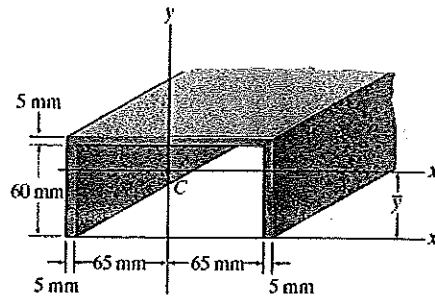


Fig. 3

4. The uniform link shown in Fig. 4 has a mass of 20 kg. The spring is un-stretched when $\theta=0^\circ$. Determine the angle θ for equilibrium and investigate the stability at the equivalent position. (25 分)

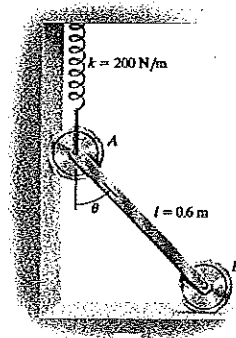


Fig. 4