

元智大學 100 學年度研究所 碩士班 招生試題卷

系(所)別：機械工程學系碩士班

組別：丙組

科目：應用力學

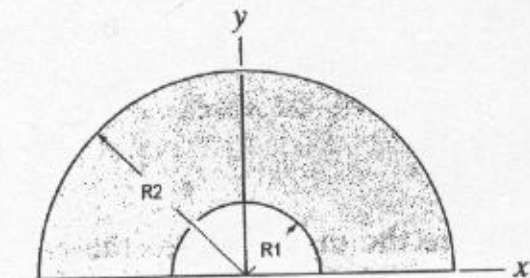
用紙第 | 頁共 > 頁

●不可使用電子計算機

1. The man has a weight  $W$  and stands at the center of the plank. If the planes at A and B are smooth, determine the tension in the cord in terms of  $W$  and  $\theta$ . (25%)



2. For the following uniform semi-circular ring with its inside diameter  $R_1$  and outside diameter  $R_2$ , find its center of gravity. (25%)



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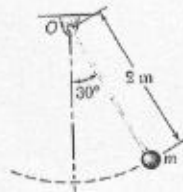
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用紙第 2 頁共 2 頁

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3. The ball of a 2-m pendulum describes an arc of a circular in a vertical plane. If the tension in the cord is 2.5 times of the weight of the ball for the position shown, find the velocity and acceleration of the ball in that position. (25 %)



4. When the linkage passes through the position shown with CB horizontal and OA vertical, the angular velocity of CB is 2 rad/s counterclockwise ( $\dot{\theta}_{CB} = 2 \bar{k}$ ). For the instant, determine the angular velocities of OA and AB. (25 %)

