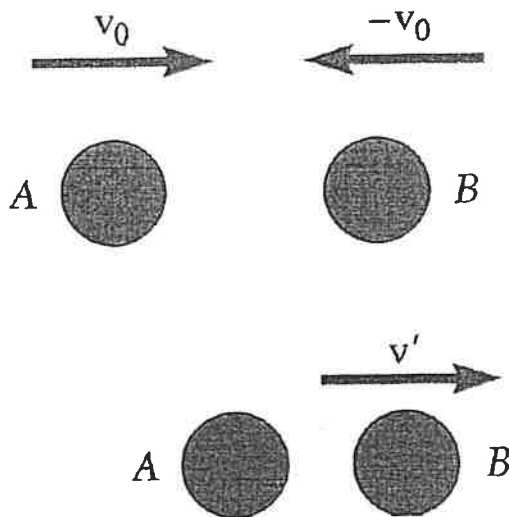


科目名稱	動力學	類組代碼	D37
		科目碼	D3794

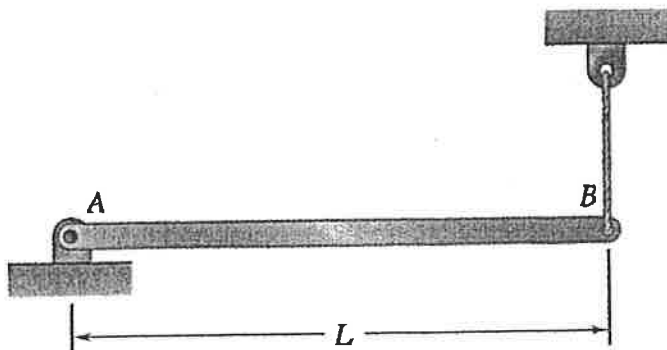
※本項考試依簡章規定所有考科均「不可」使用計算機。

本科試題共計 二 頁

1. Two disks sliding on a frictionless horizontal plane with opposite velocities of the same magnitude $v_0 = 10 \text{ m/s}$ hit each other squarely. Disk A is known to have a mass of 6 kg and is observed to have zero velocity after impact. Determine the mass of disk B and the velocity of disk B after impact, knowing that the coefficient of restitution between the two disks is 0.5 . (25%)



2. A uniform rod of length L and mass m is supported as shown. If the cable attached at end B suddenly breaks, determine (a) the acceleration of end B , (b) the reaction at the pin support. (25%)

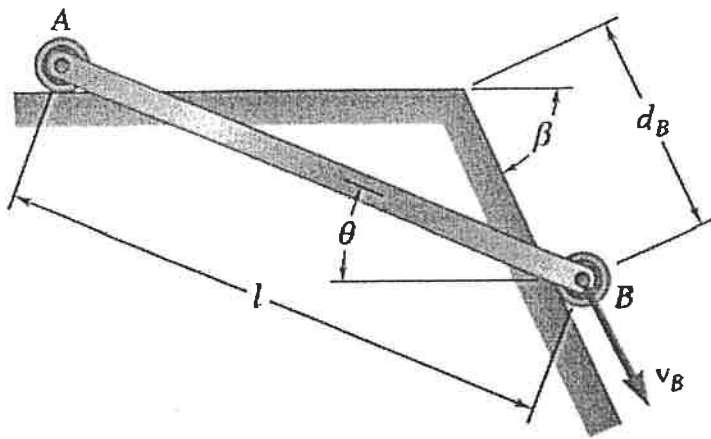


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本科試題共計 二 頁

3. The wheels attached to the ends of rod AB roll along the surfaces shown. The velocity v_B is constant. Derive an expression for the angular velocity and angular acceleration of the rod in terms of v_B , θ , l and β . (25%)



4. The two blocks shown are originally at rest. Neglecting the masses of the pulleys and the effect of friction in the pulleys and between block A and the horizontal surface, determine (a) the acceleration of each block, (b) the tension in the cable. (25%)

