臺灣綜合大學系統 105 學年度學士班轉學生聯合招生考試試題

科目名稱	應用力學	類組代碼	D09
		科目碼	D0991

※本項考試依簡章規定各考科均「不可以」使用計算機	本試題共計 2 頁

1. The concrete wall ABC is subjected to a distributed load $p(z)$ shown below and is supported by two struts that can be modelled by springs. The wall has a width of 5m. Determine the force of each spring. Assume the wall is rigid and undergoes small displacement. Point A is a hinge. (25%)
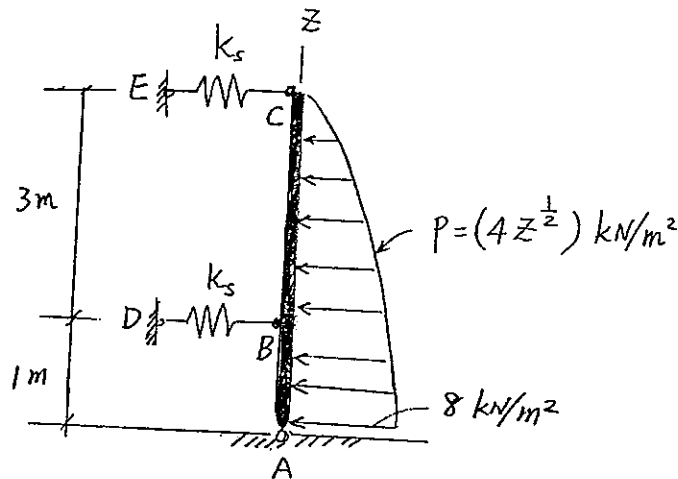
2. As shown below, force P is applied on a uniform crate of weight W and width b. Assume the frictional coefficient of the ground is μ_s. If force P is increased gradually, what will be the largest elevation h of P to insure slipping rather than tipping will occur first? (25%)
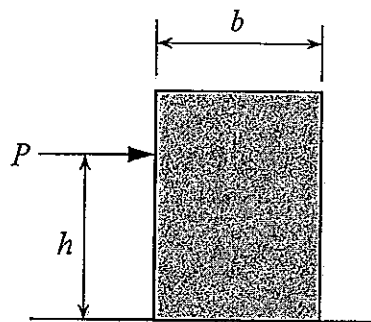
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3. It is known that the tension in the cable BH is 450N. Compute the following items: (1) the moment of tension force BH **about point A**. (2) The moment of tension force BH **about line AD**. (3) The perpendicular distance between the line AB and cable BH. (Note that joint H is located on x-y plane and member ACD is located on x-z plane. Joints A and D are ball-and socket joints.) (25%=10+10+5%)
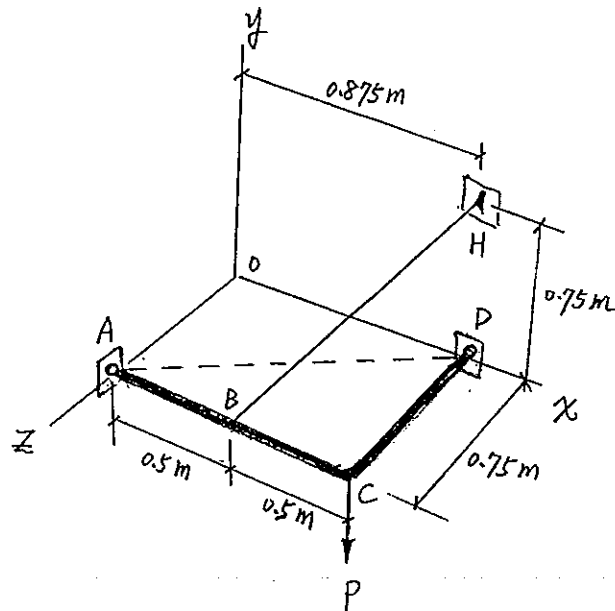
4. A 10-m boom is acted upon by the 4-kN force shown below. Determine (1) the tension in each cable and (2) the reaction at the ball-and-socket joint at A. (Note that joints A, D and E are all located on y-z plane.) (25%=15+10%)