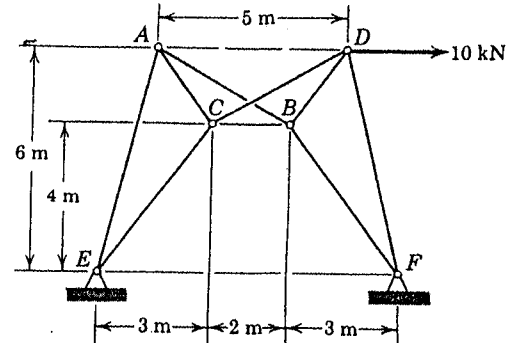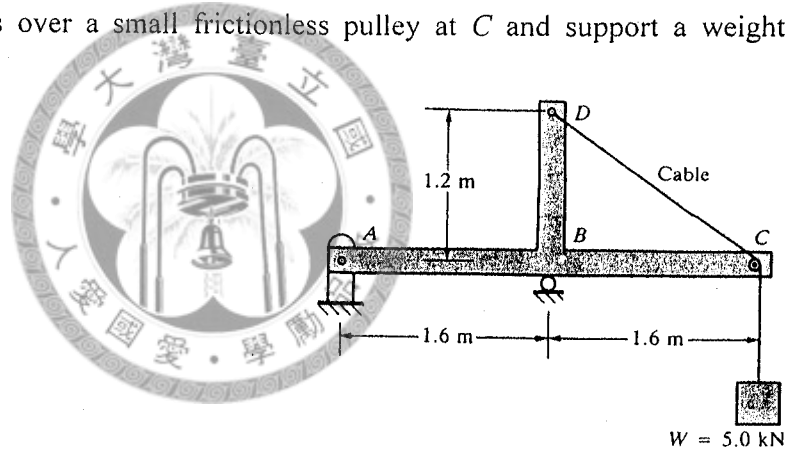(一). The hinged frames *ACE* and *DFB* are connected by two hinged bars, *AB* and *CD*, which cross without being connected. Compute the force in *AB*. (20 分)

(二). Construct shear-force and bending-moment diagrams for the beam *ABC* loaded as shown in the figure. The cable passes over a small frictionless pulley at *C* and support a weight $W = 5.0\,\text{kN}$. (20 分)

(三). The truss shown in figure is constructed of a material having a stress-strain relationship given by the equation $\sigma = B\sqrt{\varepsilon}$, where B is a constant. Find the axial forces in all three bars by using complementary energy and the force method. (20 分)
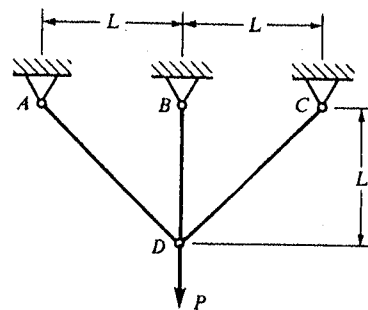
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(四). The simple pendulum A of mass m_A and length l is suspended from the trolley B of mass m_B. If the system is released from rest at $\theta = 0$, determine the velocity v_B of the trolley when $\theta = 90°$. Friction is negligible. (20 分)
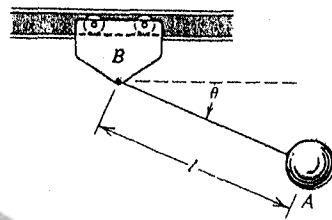
(五). A cord is wrapped around the inner drum of a wheel and pulled horizontally with a force of 200 N. The wheel has a mass of 50 kg and a radius of gyration of 70 mm. Knowing that $\mu_s = 0.20$ and $\mu_k = 0.15$, determine the acceleration of G and the angular acceleration of the wheel. (20 分)

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