淡江大學 99 學年度轉學生招生考試試題

系別：航空太空工程學系三年級　　科目：工程力學(含靜力學、動力學)

本試題共　4　大題，2　頁

1. A gable frame is subjected to a wind loading, as shown in Fig. 1.　Determine the reactions at its supports due to the loading. (25%)
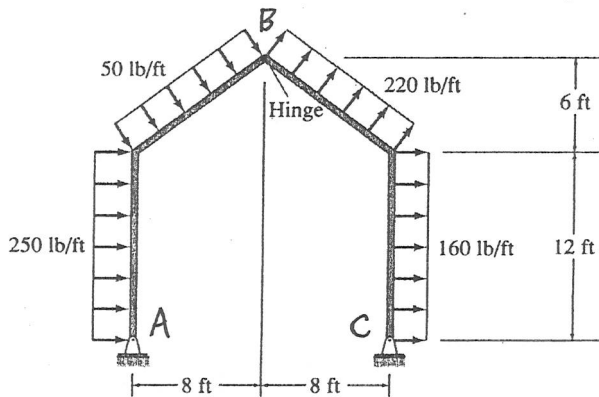

Fig. 1

2. The landing gear shown in Fig. 2 consists of the bent member *ABCD* and the two supports *CE* and *CF*, which are two force members. Points *D*, *E*, and *F* connect to the fuselage. Point A receives the loads from the wheel.　The connection at *D* can resist forces in all directions but only a torsion about *BCD* axis. Neglect the weight of the landing gear, calculate the forces in members *CE* and *CF*, N_{CE} and N_{CF} .　(25%)
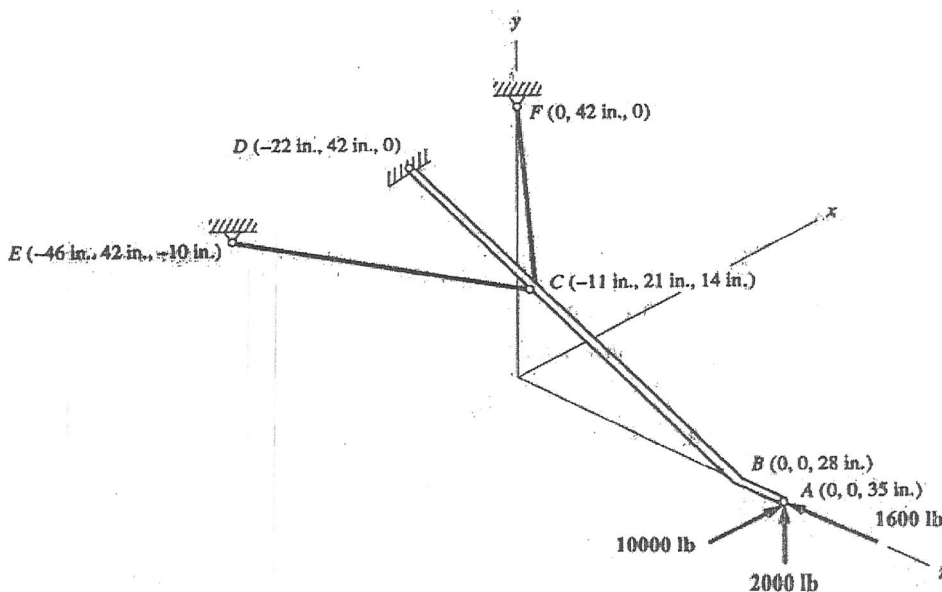
背面尚有試題　　　　Fig 2

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3. The spring has an unstretched length of 0.4 m and a stiffness of 200 N/m.　The 3-kg slider and attached spring are released from rest at A and move in the vertical plane.　Calculate the velocity v of the slider as it reaches B in the absence of friction. (25%)
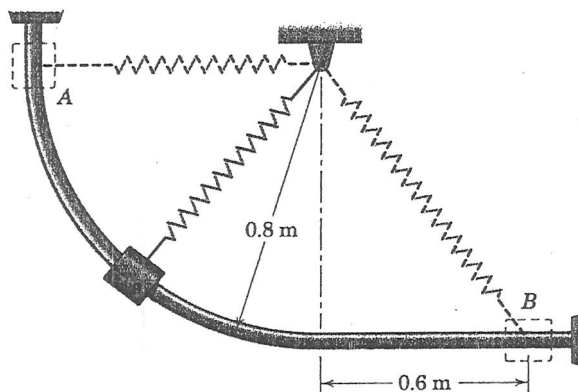

Fig. 3

4. A jet-engine noise suppressor consists of a movable duct that is secured directly behind the jet exhaust by cable A and deflects the blast directly upward.　During a ground test, the engine sucks in air at the rate of 43 kg/s and burns fuel at the rate of 0.8 kg/s.　The exhaust velocity is 720 m/s.　Determine the tension T in the cable. (25%)
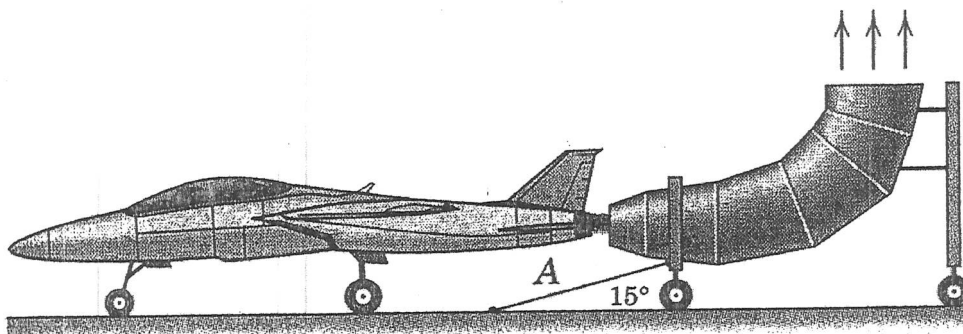

Fig 4