工程力學

Exam. # 3 (11/20/2017)

1. (20pts) Determine the force in each member of the truss shown in **Fig. 1**. State whether each member is in tension or compression.

2. (20pts) Determine the force in members *CE*, *DE* and *DF* of the truss shown in **Fig. 2.**

3. (15pts) Determine the components of all forces acting on member *ABCD* when $\theta = 0°$ shown in **Fig. 3**.

4. (15pts) Determine the magnitude of the gripping forces produces when two 300-N forces are applied as shown in **Fig. 4**.

5. (30pts) The motion of the backhoe bucket (反鏟斗) shown in **Fig. 5** is controlled by the hydraulic cylinders *AD*, *CG*, and *EF*. As a result of an attempt to dislodge a portion of a slab, a 10-kN force ***P*** is exerted on the bucket teeth at *J*. Knowing that $\theta = 45°$, determine the force exerted by each cylinder.

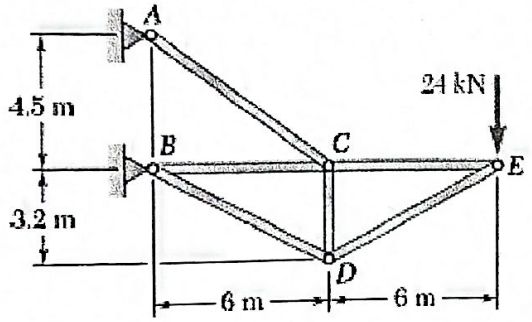

Fig. 1

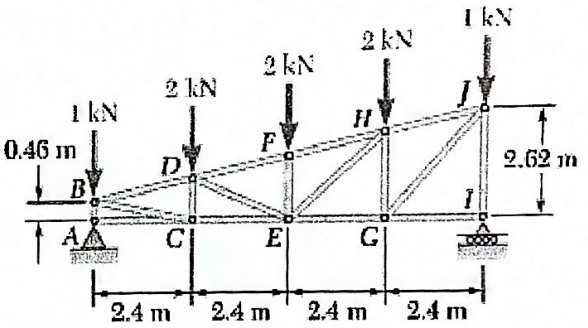

Fig. 2

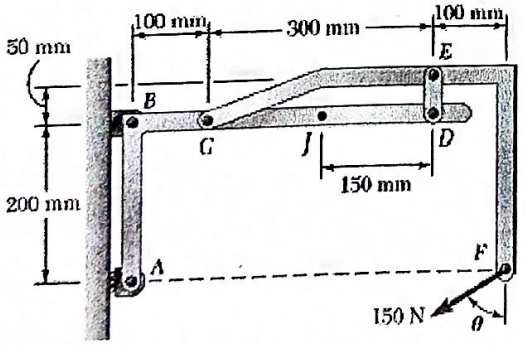

Fig. 3

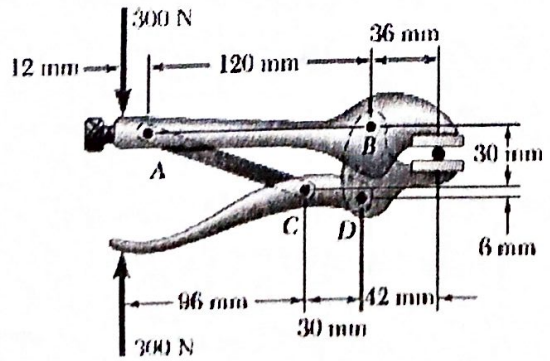

Fig. 4

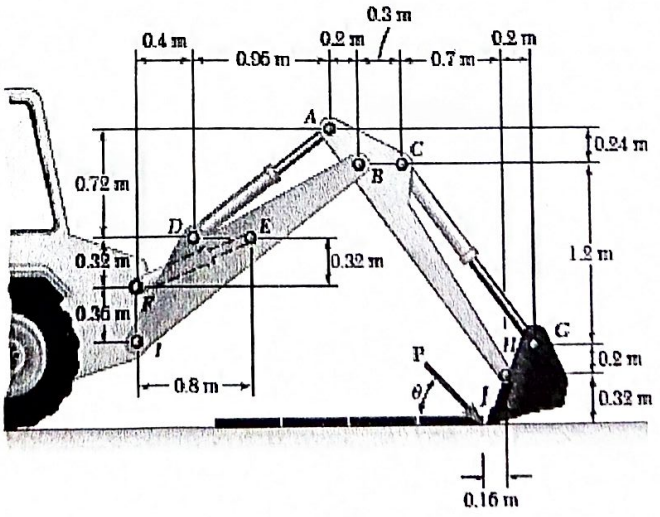

Fig. 5