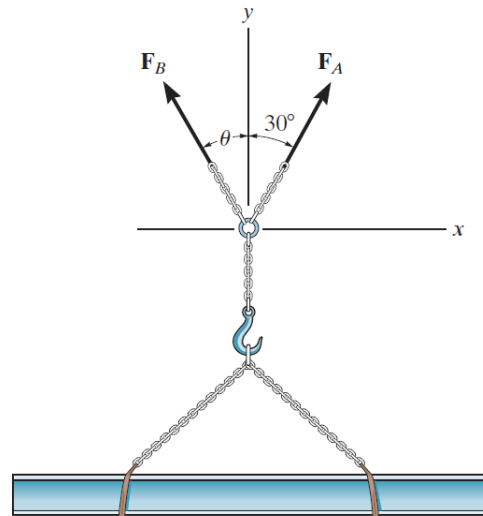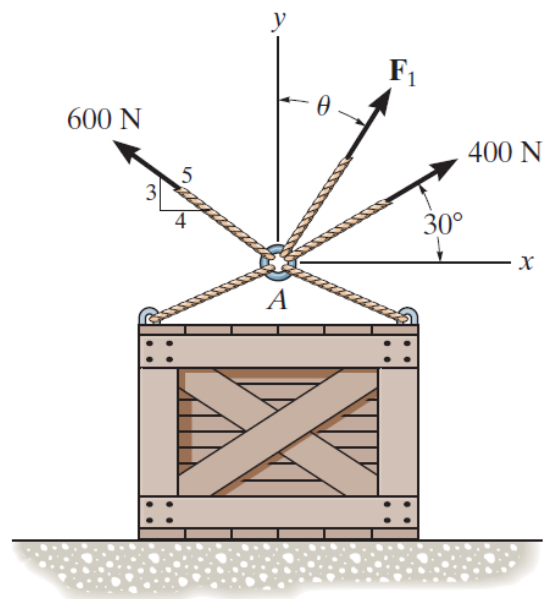1. The beam is hoisted using two chains. Determine the magnitudes of forces $\mathbf{F}_A$ and $\mathbf{F}_B$ acting on each chain in order to develop a resultant force of 600 N directed along positive y axis. Set $\theta = 45^0$.

2. Determine the magnitude of F1 and its direction θ so that the resultant force is directed vertically upward and has a magnitude of 800 N.

3. If the mass of the girder is 3 Mg and its center of mass is located at point G, determine the tension developed in cables AB, BC, and BD for equilibrium.

$\mathbf{F}_{AB}$

A

B

$45°$ $30°$

C D

G
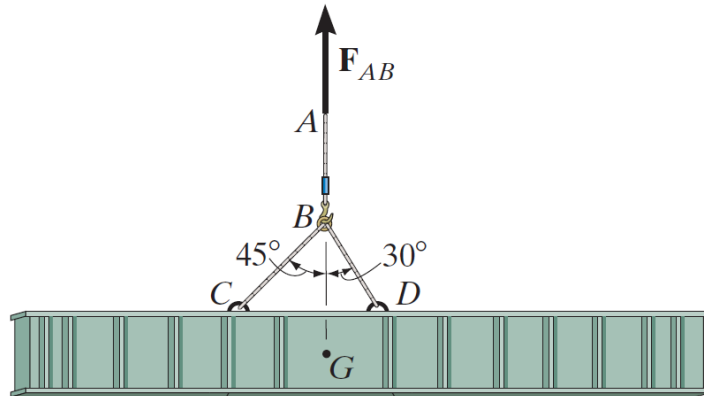
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4. The gusset plate is subjected to the forces of four members. Determine the force in member B and its proper orientation θ for equilibrium. The forces are concurrent at point O. Take $F = 12$ kN.

A

8 kN

O

θ

$45°$

D

B

$\mathbf{T}$

C 5 kN

F