



Note: Answer with drawing F.B.D will get zero.

1- Express the force as a Cartesian vector in each figure

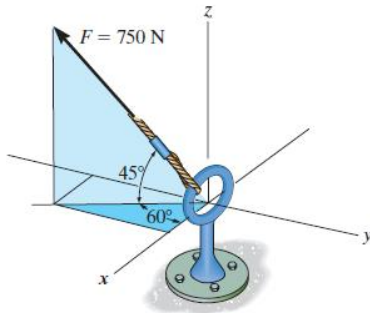


fig.1

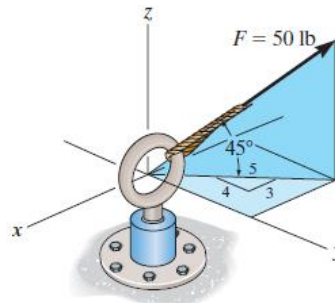


fig.2

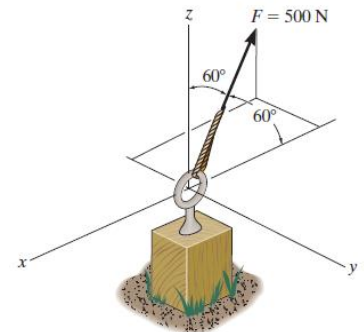
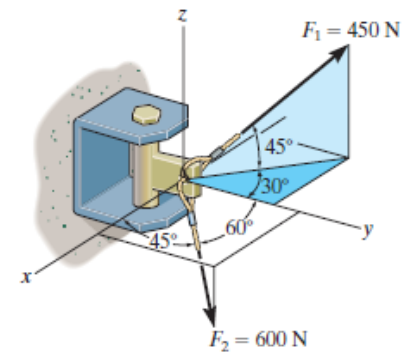
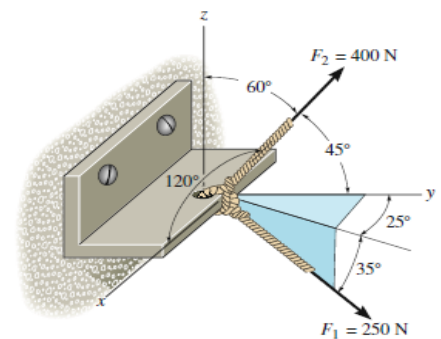


fig.3

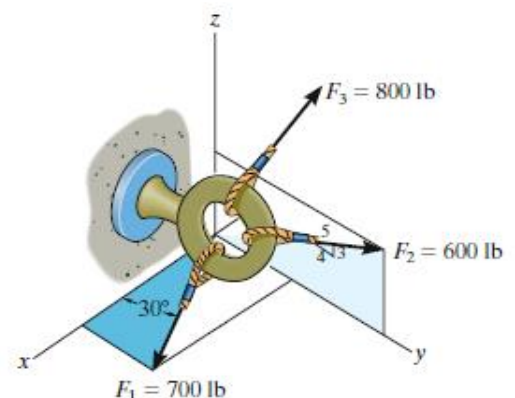
2 - Determine the magnitude and coordinate direction angles of the resultant force acting on the bracket.



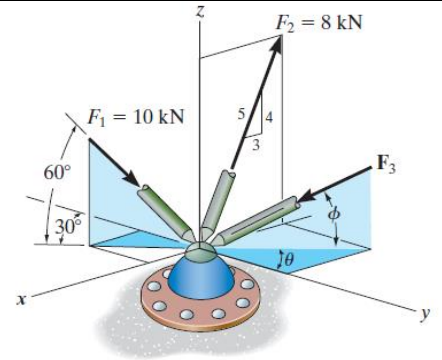
3- The bracket is subjected to the two forces shown. Express each force in Cartesian vector form and then determine the resultant force. Find the magnitude and coordinate direction angles of the resultant force.



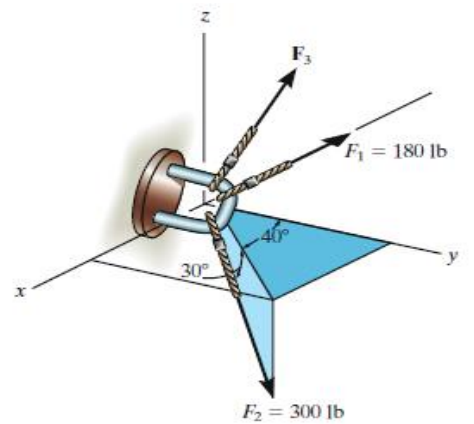
4- If the coordinate direction angles for F_3 are $\alpha_3 = 20^\circ$, $\beta_3 = 60^\circ$ and $\gamma_3 = 45^\circ$, and , determine the magnitude and coordinate direction angles of the resultant force acting on the eyebolt.



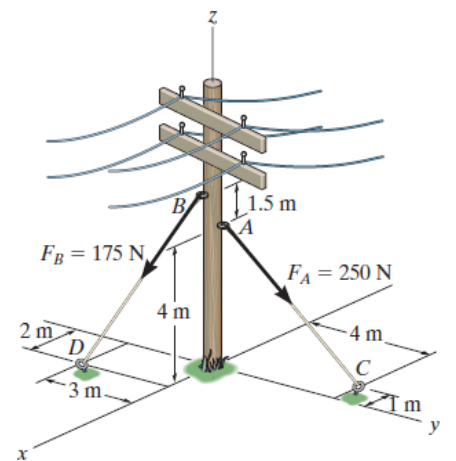
5 - If $F_3 = 9 \text{ kN}$, $\theta = 30^\circ$, and $\phi = 45^\circ$, determine the magnitude and coordinate direction angles of the resultant force acting on the ball-and-socket joint.



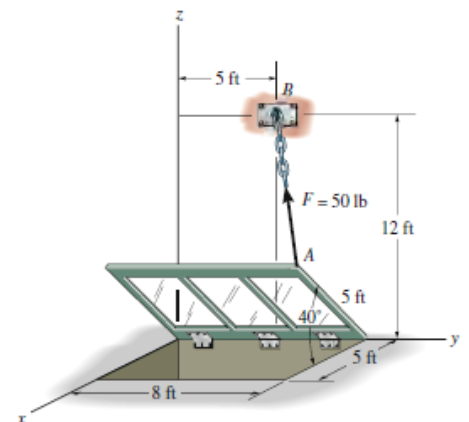
6 - Determine the magnitude and coordinate direction angles of F_3 so that the resultant of the three forces acts along the positive y axis and has a magnitude of 600 lb.



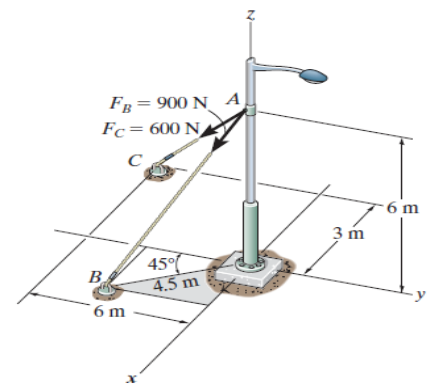
7 - The guy wires are used to support the telephone pole. Represent the force in each wire in Cartesian vector form. Neglect the diameter of the pole.



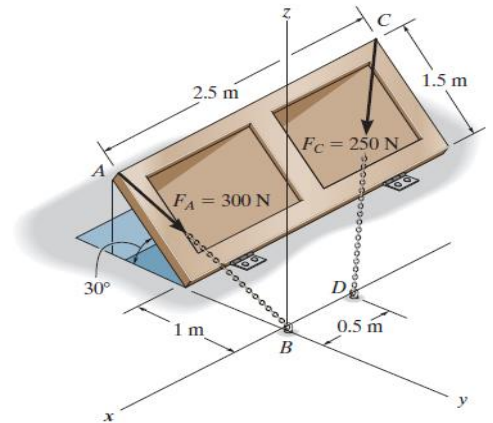
8 - The window is held open by chain AB. Determine the length of the chain, and express the 50-lb force acting at A along the chain as a Cartesian vector and determine its coordinate direction angles.



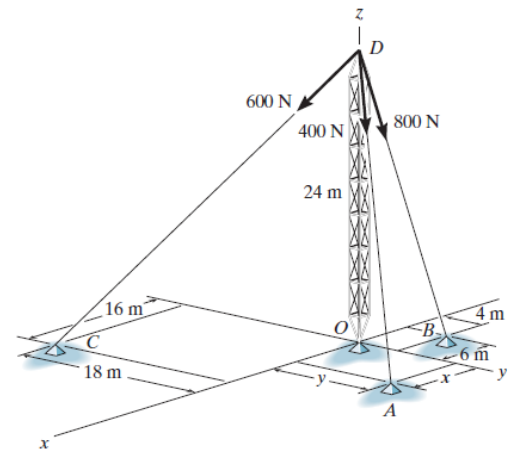
9 - Determine the magnitude and coordinate direction angles of the resultant force acting at A.



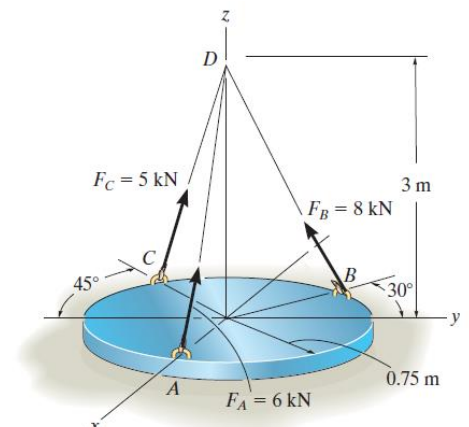
10 - The door is held opened by means of two chains. If the tension in AB and CD is $F_A = 300\text{ N}$ and $F_C = 250\text{ N}$ respectively, express each of these forces in Cartesian vector form.



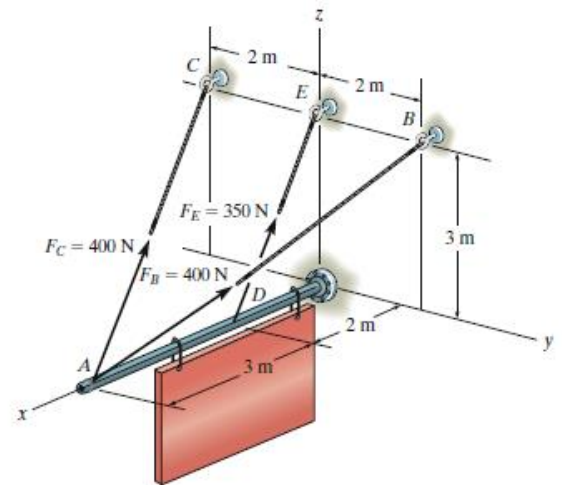
11- The tower is held in place by three cables. If the force of each cable acting on the tower is shown, determine the magnitude and coordinate direction angles of the resultant force. Take $x = 20\text{ m}$, $y = 15\text{ m}$.



12 - The cylindrical plate is subjected to the three cable forces which are concurrent at point D . Express each force which the cables exert on the plate as a Cartesian vector, and determine the magnitude and coordinate direction angles of the resultant force.



13 - Determine the magnitude and coordinate direction angles of the resultant force of the two forces acting on the sign at point A.



14 - Two cables are used to secure the overhang boom in position and support the 1500-N load. If the resultant force is directed along the boom from point A towards O, determine the magnitudes of the resultant force and forces F_B and F_C . Set $x = 3\text{ m}$ and $z = 2\text{ m}$.

