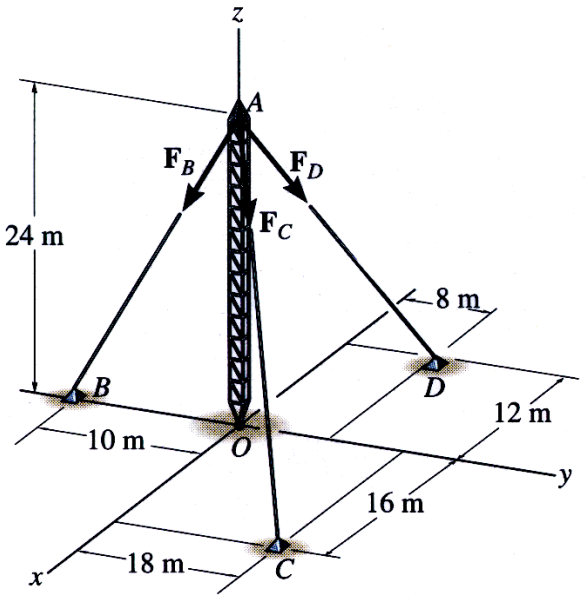
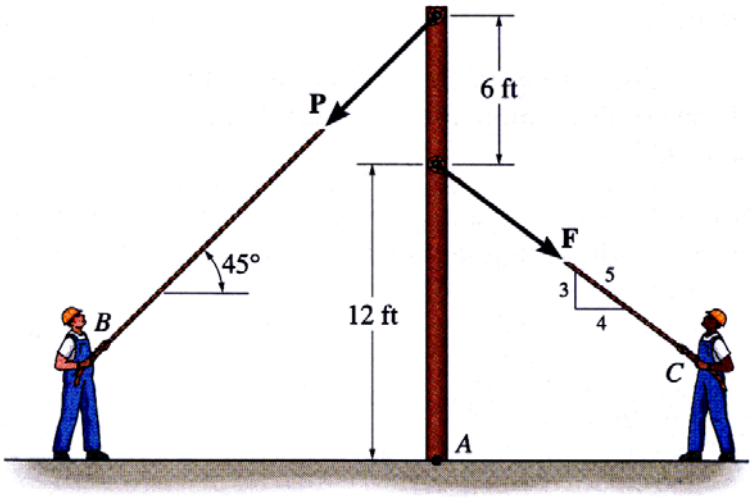
BE50E Fall 2000 Exam 1 Name: _____

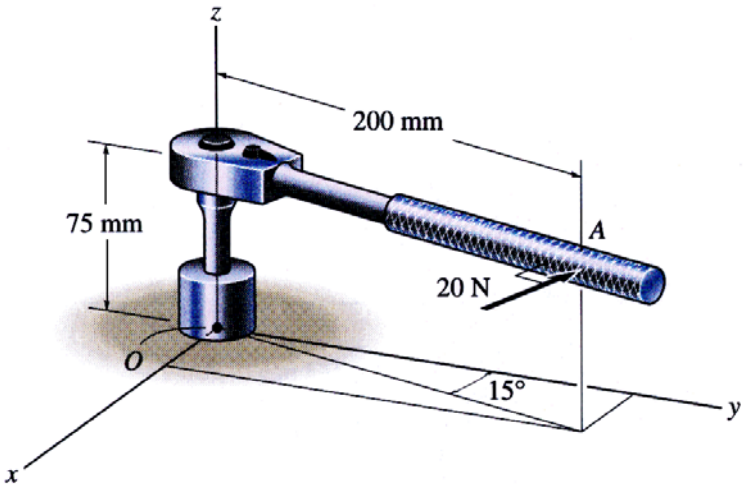
1. The antenna tower is supported by three cables. If the forces in these cables are $F_B = 520$ N, $F_C = 680$ N, and $F_D = 560$ N, determine the **magnitude** and **coordinate direction angles** (direction cosines) of the resultant force acting at A.



2. If the man at *B* exerts a force of $P = 30$ lb on his rope, determine the **magnitude** of the force ***F*** the man at *C* must exert to prevent the pole from tipping, i.e. so the resultant moment about *A* of both forces is zero.



3. A 20-N horizontal force is applied perpendicular to the handle of the socket wrench. Determine the **moment vector** created by this force about point *O*.



4. Replace the loading by an equivalent **resultant force** and specify its **location** on the beam, measured from point *O*.