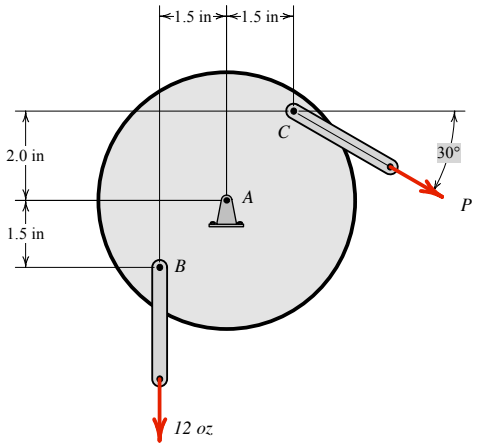
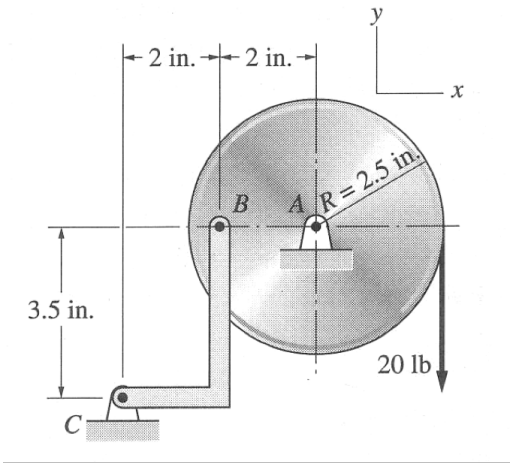
Two force body principle:
If exactly two forces act upon a body in equilibrium, the forces must be equal and opposite and share the same line of action, or they must be zero.

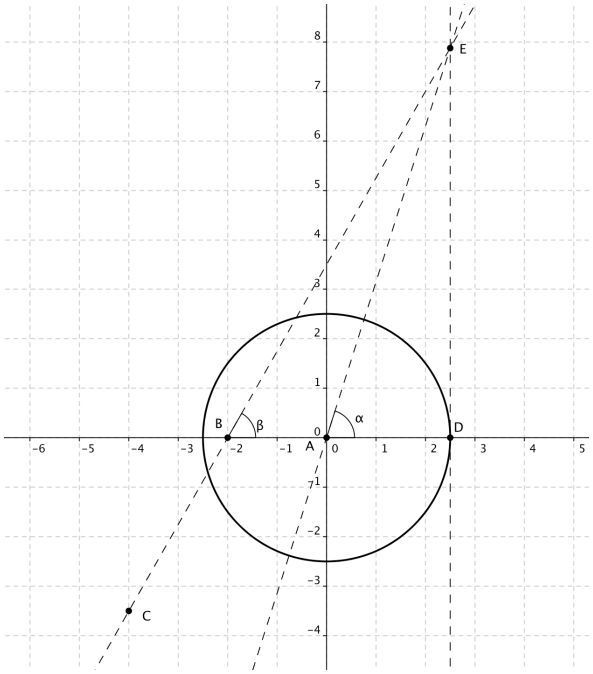
Three force body principle:
If exactly three non-parallel forces act upon a body in equilibrium, their lines of actions must intersect at a single point, or they must be parallel.

1. The small machine part is pinned at A and subjected to forces at *B* and *C*. Use the three-force body principle to determine the magnitude of force *P* and the magnitude and direction of the force at *A*.

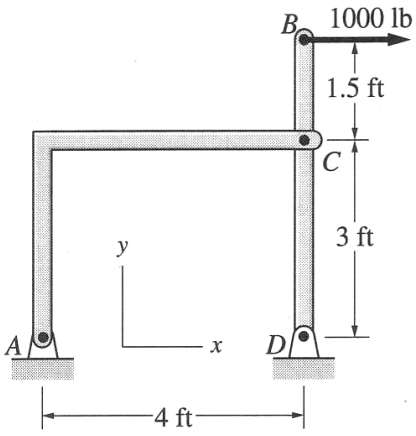


2. Using the principle of two- and three- force bodies, determine the forces acting on the cylinder at points *A* and *B*.





3. Use the idea of two and three force bodies to determine the forces acting at points A, C, and D of the frame.



4. The spanner shown is used to rotate a shaft. A pin fits in a hole at *A*, while a flat, frictionless surface rests against the shaft at B. If a 250-N force **P** is exerted on the spanner at *D*, find the reaction at *B*, and the component of the reaction at *A* in a direction perpendicular to *AC*.