Problem #1

For the lifting mechanism shown below, the ends of three cables are attached to a ring at A and to the edge of the uniform plate. Determine the tension in each of the three cables (AB, AC, and AD) assuming the plate weighs 2620 kg. Note that the system is in equilibrium.
Problem #2

For the bent rigid member shown, which is loaded in equilibrium, determine the reactions at the pin B and the frictionless roller A.

If the applied moment of 800 ft-lb is moved to point D, how will the reaction forces change?
Problem #3

Determine the moment that force $P$ generates about a line drawn between points $A$ and $D$. 

![Diagram of a mechanical system with points A, B, C, D, and E, and a force $P = 240$ lb applied at point C. The distances and coordinates are labeled: A at (0, 0, 0), B at (0, 2 ft, 0), C at (3 ft, 6 ft, 0), D at (6 ft, 0, 0), E at (8 ft, 0, 0).]
Problem #4

For the beam shown below, determine the following:

a.) Replace the distributed loading by an equivalent resultant force and specify where the resultant's line of action intersects member BC.
b.) Replace the loading with an equivalent force-couple system at point A.