Problem 2.1

(Prob. 3.1 text). Consider the truss structure of Exercise 3.3: *What if* you are interested only in the forces acting within the members at midspan. *Show that* you can determine the forces in members 6-8, 6-9 and 7-9 with but a **single** isolation, after you have determined the reactions at the left and right ends. This is called the **method of sections**.

Problem 2.2

(Prob. 3.11 text). Find the force in the member CD of the structure shown in terms of P. All members, save CF, are of equal length. In this, use **method of joints** starting from either node A. (First determine the reactions at A and B).

Problem 2.3

(Prob. 3.13 text). Determine the forces acting on member DE. How does this system differ from that of the previous problem? (Prob. 3.12, text) How is it the same?

Problem 2.4

The concrete retaining wall extends uniformly in a direction perpendicular to the plane of the paper. Find the location of the center of gravity, \( x_{cg}, y_{cg} \).

a) If \( h = 3 \) m, \( b = 2 \) m, and \( a = 0.5 \) m, what are the values of \( x_{cg}, y_{cg} \)?

b) What is the weight per unit length in a direction perpendicular to the plane of the paper?

Wt density concrete = 23 kN/m³

Due Friday, 20 September