Homework #4

Assigned on Tuesday, Feb 10; due on Tuesday, Feb 17

A single-story two-bay framed structure is shown in **Figure 1** with applied loads and moment in terms of **P**. Using the unit incremental load method perform an elastic-plastic analysis of the frame under proportionally increasing loads. Assume elastic-perfectly plastic moment-curvature/rotation behavior for each member. Plot **P** versus horizontal displacement (δ) at node **6**.

Note that the beam to column connection at joint **6** is a pinned one, while the rest are rigid. Assume all the members to be axially rigid. The sections are defined as per AISC steel tables below:

Columns (*1, 2* & *3*): W24x84
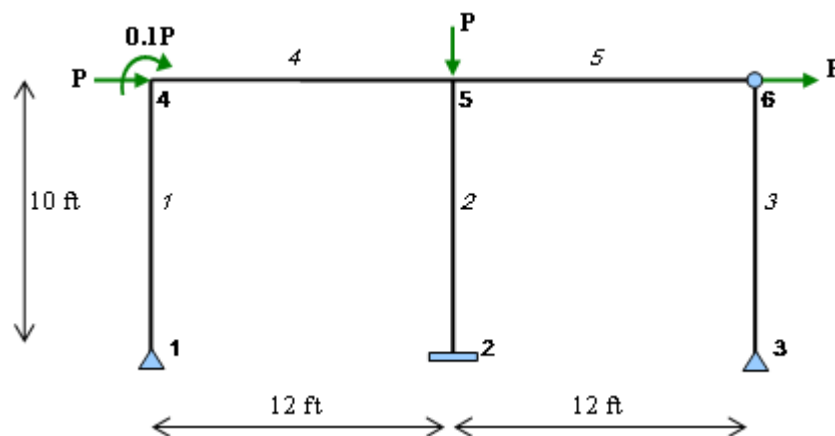
Beams (*4* & *5*): W24x62

Use: E = 29000 ksi, and F_y = 50 ksi. ($M_p = F_y Z$)

Figure 1. Single-story two-bay frame