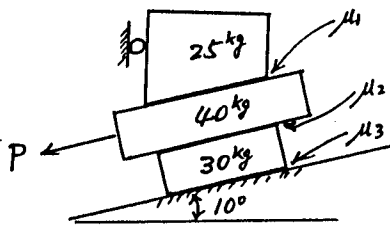


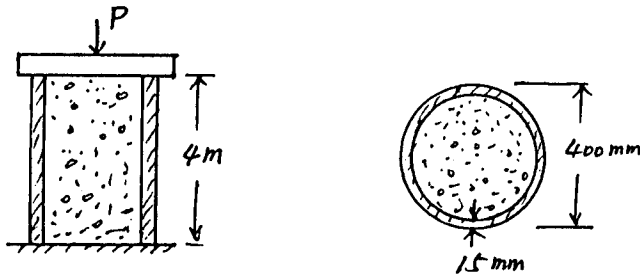
1. 試求開始拉動之最小 P 值。各接觸面之摩擦係數為 $\mu_1 = 0.25$

$\mu_2 = 0.3$

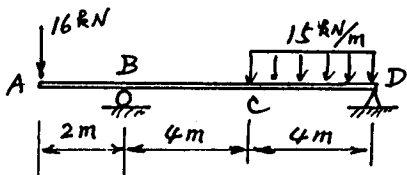
$\mu_3 = 0.4$



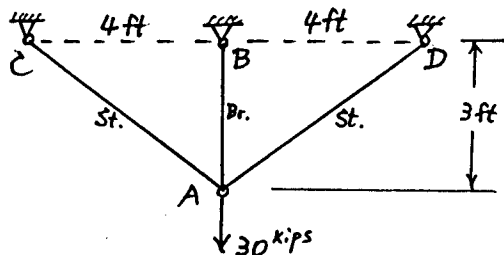
2. 一鋼管外徑 400 mm, 厚度 1.5 cm, 容許應力為 120 MPa, $E_s = 200 \text{ GPa}$, 內部填充混凝土, 混凝土容許應力為 10 MPa, $E_c = 20 \text{ GPa}$; 試求最大容許載重 P.



3. 試用力矩面積法 (Moment-Area Method) 求 A 點之撓度, $EI = 72 \times 10^3 \text{ kN-m}^2$



4. 試求圖示桁架各桿件應力 σ_b 及 σ_s 及 A 點垂直變位。



AB 為銅棒

$E_b = 15 \times 10^3 \text{ ksi}$

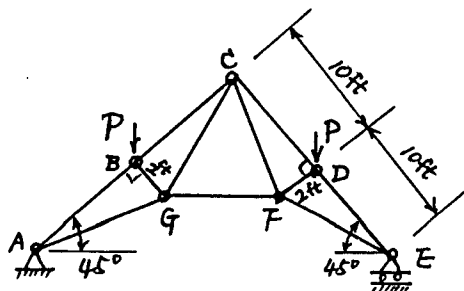
$A_b = 3.0 \text{ in}^2$

AC, AD 為鋼棒

$E_s = 30 \times 10^3 \text{ ksi}$

$A_s = 2.5 \times 10^3 \text{ ksi}$

5. 圖示桁架各桿件斷面積為 1.5 in^2 , 若容許張應力為 5500 psi, 容許壓應力為 6500 psi, 試求容許最大荷重 P.



$BG \perp AC$

$DF \perp CE$

BG, DF 均為 2 ft.

對稱桁架