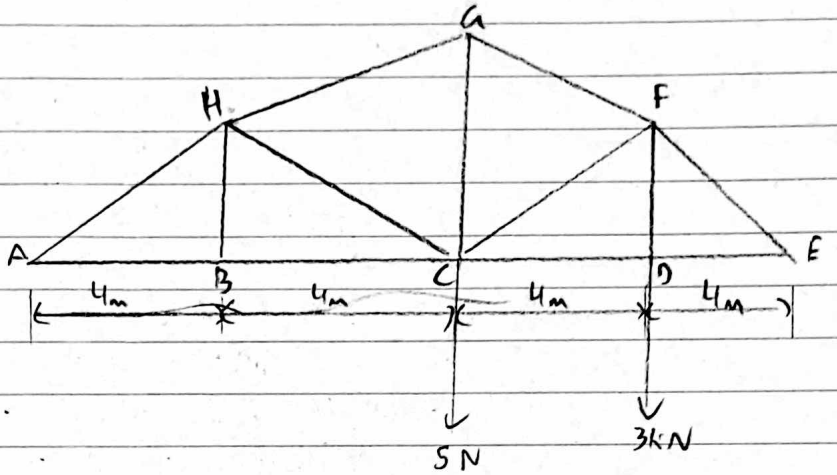
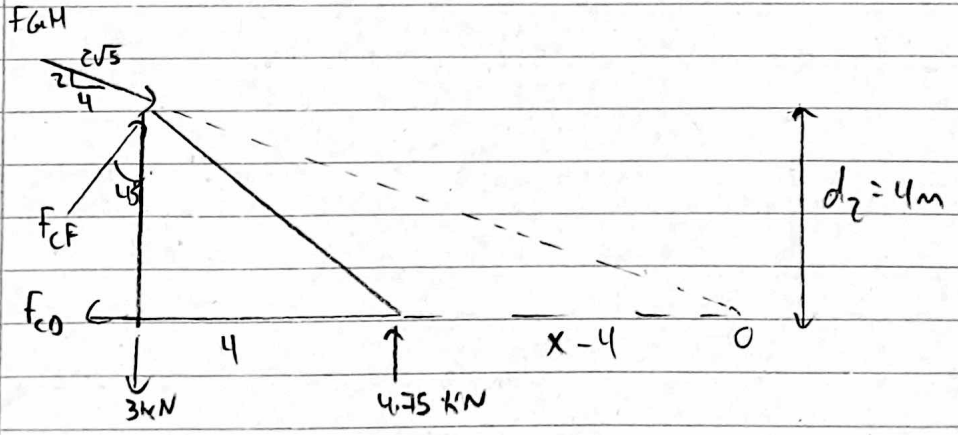
Solutions: 21-5-6.4-MK-01

Determine the forces in member CF of truss shown



$\Sigma M_A = 0: \quad E_y(16) - (5N)(8m) - (3N)(12m) \rightarrow E_y = \frac{(5)(8)+(3)(12)}{16} = 4.75kN$

$\Sigma F_y = 0 = A_y - 5kN - 3kN + 4.75kN \rightarrow A_y = 3.25\ kN$



using similar triangles

$\frac{2}{4} = \frac{4}{x} \rightarrow x = 8$

$\circlearrowleft \Sigma M_D = 0: \quad -F_{CF}\sin 45°(12m) + (3kN)(8m) - (4.75kN)(4m) = 0$

$F_{CF} = 0.589\ kN$ compression