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ARCH 324 - Structures 2, Winter 2009

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SOLVE BY DEFLECTION METHOD

CHOOSE B AS REDUNDANT

WITH B REMOVED:
SOLVE FOR $\delta_B$ BY SECOND MOMENT AREA METHOD

$M$ DIAGRAM $\frac{2730 \times 6^2}{EI} = 296 \, \frac{K \cdot ft}{EI}$

$\Sigma M_A = 0 = -M_A + \frac{2730 \times (10)}{EI} + \frac{1024 \times (20)}{EI}$

$M_A = \frac{47784.67}{EI} = \Delta \frac{K \cdot ft}{K}$

WITH B AS LOAD:
SOLVE WITH EQUATION IN D-25

$\Delta = \frac{P \times L^3}{48EI} = \frac{P \times 48^3}{48EI} = \frac{47784.67}{EI}$

$P = 20.74 \, K$

BY SYMMETRY:

$A + C = 64 - 20.74 = 43.26$

$A = C = 21.63 \, K$