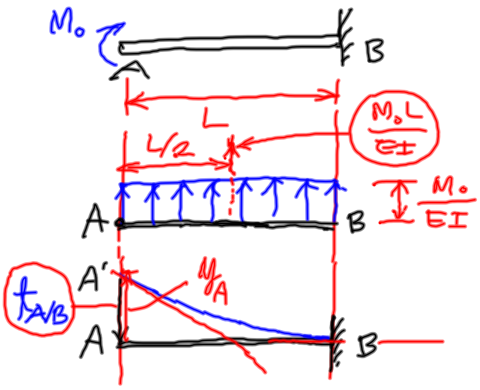
9.95

$\theta_A = ?$ $y_A = ?$ Flexural rigidity $= EI$




$t_{A/B}$ = from the A' of the beam to the tangent drawn at B

$\vec{y}_A = -\vec{t}_{A/B}$

$\vec{t}_{A/B} = +\circlearrowleft (M_A)_{AB}$

2nd theorem

$t_{A/B} = \frac{L}{2} \cdot \frac{M_0 L}{EI} = \frac{M_0 L^2}{2EI}$

$\vec{y}_A = \frac{M_0 L^2}{2EI} \uparrow$

$\theta_{B/A} = A_{AB}$ where pt. B is on the right side of pt. A.

1st theorem

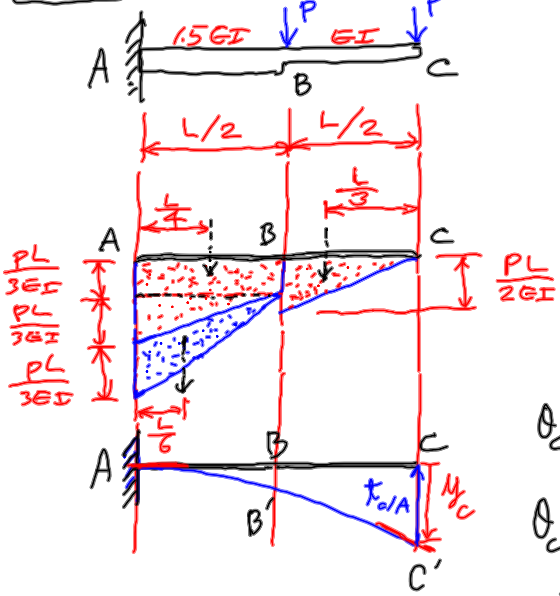
$\theta_{B/A} = \theta_B - \theta_A = 0 - \theta_A = -\theta_A = A_{AB}$

$\theta_A = -A_{AB} = -\frac{M_0 L}{EI}$

$\theta_A = \frac{M_0 L}{EI} \circlearrowright$

9.106

$\theta_C = ?$ $y_C = ?$




Stepped beam

$\frac{PL}{2(1.5EI)} = \frac{PL}{3EI}$

$\frac{PL}{1.5EI} = \frac{2PL}{3EI}$

$\frac{PL}{2(1.5EI)} = \frac{PL}{3EI}$

$\theta_{C/A} = \theta_C - \theta_A = \theta_C - 0 = \theta_C = A_{AC}$

$\theta_C = -\frac{1}{2}\left(\frac{PL}{3EI} + \frac{3PL}{3EI}\right)\left(\frac{L}{2}\right) - \frac{L}{4}\left(\frac{PL}{2EI}\right)$

$= -\square$

$\theta_C = \square \circlearrowright$

$\vec{t}_{C/A} = +\circlearrowleft (M_C)_{AC}$

$\vec{y}_C = -\vec{t}_{C/A}$

$t_{C/A} = \square$

$\vec{y}_C = \square \downarrow$