

**Ex. 1.**  $q, a, P=qa, M=qa^2, EI=const$

$v_c, y_D - ?$

Castigliano theorem

**Ex. 3.**

$T_1, T_2, T_3 - ?$

**Ex. 2.**  $q, a, P=qa, M=qa^2, EI=const$

reactions - ?

Menabrea-Castigliano theorem

**Ex. 4.**

$A_0 = A_1 = A_2 = A$   
 $h=2b, l_0=l_1=l_2=l, \lambda \geq 2c_r$

$\sigma_{cr0} : \sigma_{cr1} : \sigma_{cr2} = ?$

**Ex. 1.**  $q, a, P=qa, M=qa^2, EI=const$

$v_B, y_D - ?$

Castigliano theorem

**Ex. 3.**

$T_1, T_2, T_3 - ?$

**Ex. 2.**  $q, a, P=qa, M=qa^2, EI=const$

reactions - ?

Menabrea-Castigliano theorem

**Ex. 4.**  
 the same as for Ex. 4. (part A)