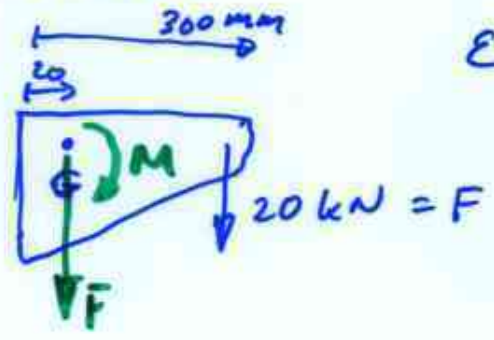


Express LOAD as a force plus a moment.



Effect @ G of F
 is Force 20kN
 + moment of
 $(20\text{kN}) \times (300 - 20\text{ mm})$
 $M = 5600\text{ Nm}$

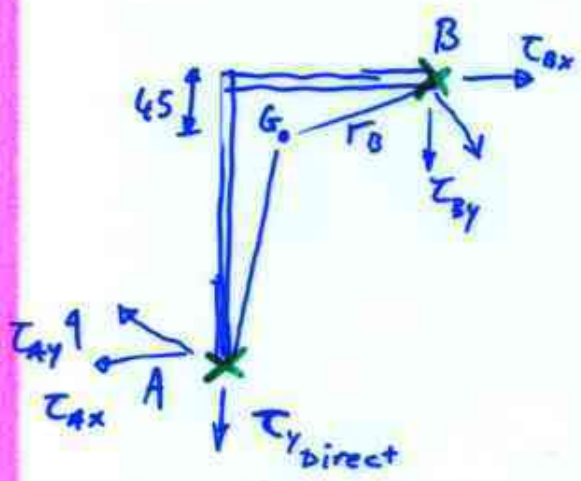
Direct Shear = $\frac{F}{A} = \frac{20\text{ kN}}{(250)(t)} = \frac{80}{t} \text{ MPa}$
 CONSTANT EVERYWHERE

Shear Due to Torque

$\tau = \frac{T r}{J}$

$\tau_{Bx} = \frac{(45)(5600)}{852083t} = \frac{295.7}{t} \text{ MPa}$

$\tau_{By} = \frac{(100-20)(5600)}{852083t} = \frac{525.8}{t} \text{ MPa}$



$\tau_{Ax} = \frac{(150-45)(5600)}{J} = \frac{690}{t} \text{ MPa}$

$\tau_{Ay} = \frac{(20)(5600)}{J} = \frac{131}{t} \text{ MPa}$

Max occurs @ A (check for yourself @ small t)

$\frac{1}{t} \sqrt{690^2 + (131 - 80)^2} = \frac{692}{t} \text{ MPa}$