

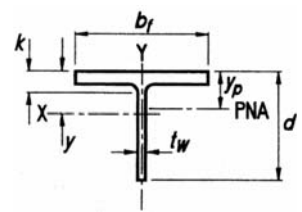
ENDS 231: Practice Quiz 5

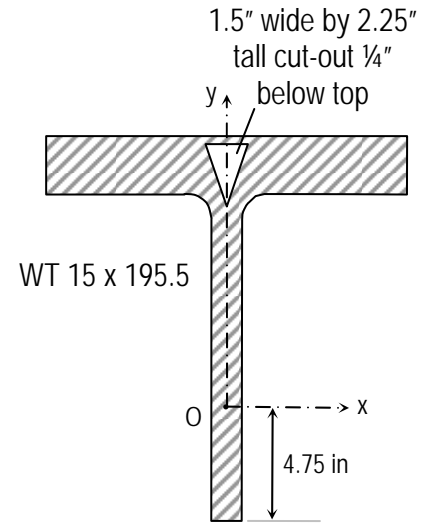
Clearly show your work and answer.

A steel section must have a void drilled into it for a special application. A WT 15 x 195.5 cut T has been bored with a (*basic*) shaped hole as shown in the cross section diagram.

- a) Where is the centroid located for the composite section with respect to the origin given?
- b) What is the moment of inertia, $\underline{I_x}$, for the composite section?
- c) [some short question from the text material]

Properties for the standard steel shape:

	<p>WT 15x195.5</p> <p>$A = 57.6 \text{ in}^2$</p> <p>$d = 16.6 \text{ in}$</p> <p>$t_w = 1.36 \text{ in}$</p> <p>$b_f = 15.6 \text{ in}$</p> <p>$t_f = 2.44 \text{ in}$</p> <p>$I_x = 1220 \text{ in}^4$</p> <p>$\bar{y} = 4.00 \text{ in}$</p> <p>$I_y = 774 \text{ in}^4$</p>
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cross section



possible basic shapes

Answers:

a) $\hat{x} = 0 \text{ in}$, $\hat{y} = 7.76 \text{ in}$

b) $I_x = 1203.9 \text{ in}^4$, ($I_y = 773.8 \text{ in}^4$)

Disclaimer: Answers have NOT been painstakingly researched.