UDS

Nombre de la alumna: Cruz Sarquiz Angelica Guadalupe

Nombre de la materia: Estática en la Arquitectura

Nombre del profesor: García López Pedro Alberto

Cuatrimestre: 3° Cuatrimestre

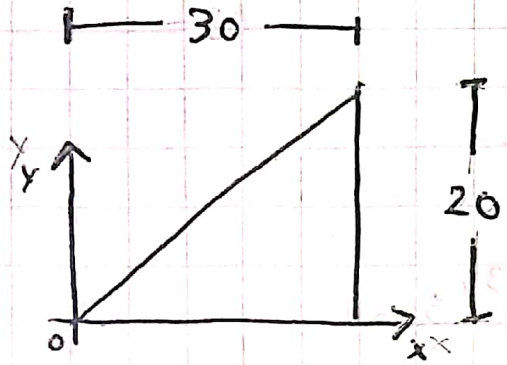
Proyecto: Tarea

Carrera: Lic. Arquitectura

Fecha: 28/07/21

Ejercicios de Estática para la Arquitectura

- Cálcula el Momento de inercia de las siguientes figuras plantas.



$$\bar{I}_x = \frac{bh^3}{36}$$

$$\bar{I}_y = \frac{b^3 h}{36}$$

$$\bar{I}_x = \frac{30\,cm\,(20\,cm)^3}{36}$$

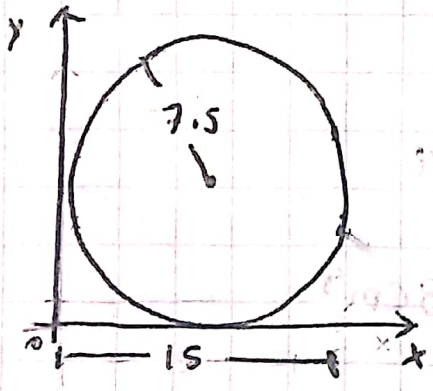
$$\bar{I}_x = \frac{8000\,cm^4}{36}$$

$$\bar{I}_x = 222.22\hat{}\,cm^4$$

$$\bar{I}_y = \frac{(30\,cm)^3\,(20\,cm)}{36}$$

$$\bar{I}_y = \frac{27000\,cm^4}{36}$$

$$\bar{I}_y = 750\,cm^4$$

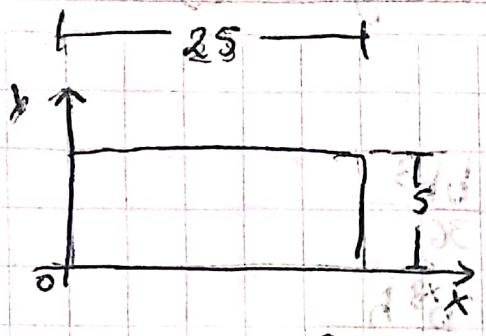


$$I_x = I_y = \frac{\pi R^4}{4}$$

$$I_x = 3.1416\,\frac{(7.5)^4}{4}$$

$$I_x = \frac{3,164.0625\,cm^4\,(3.1416)}{4}$$

$$I_x = 2485.0546\,cm^4 \quad | \quad I_y = 2485.0546\,cm^4$$



$$\bar{I}_x = \frac{bh^3}{12}$$

$$\bar{I}_y = \frac{b^3 h}{12}$$

$$\bar{I}_x = \frac{25\,cm\,(5)^3_{cm}}{12}$$

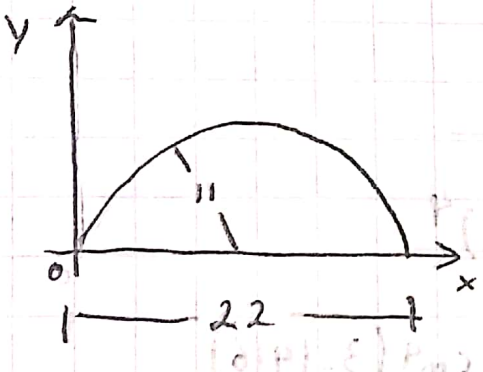
$$\bar{I}_x = \frac{25\,cm\,(125\,cm^3)}{12}$$

$$\bar{I}_x = 260.4166\,cm^4$$

$$\bar{I}_y = \frac{(25\,cm)^3\,(5\,cm)}{12}$$

$$\bar{I}_y = \frac{(15625\,cm^4)\,(5\,cm)}{12}$$

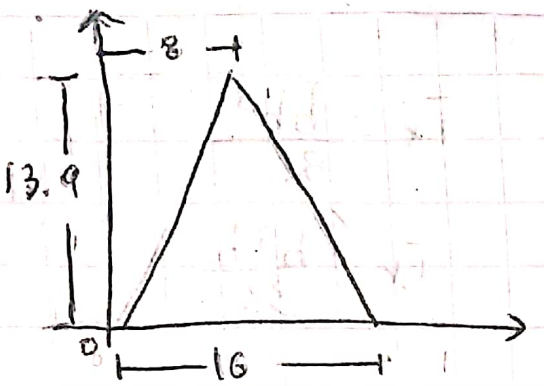
$$\bar{I}_y = 6510.4166\,cm^4$$



$$\bar{I}_x = 0.1098\,R^4$$

$$\bar{I}_x = 0.1098\,(11)^4$$

$$\bar{I}_x = 1607.5818\,cm^4$$



$$\bar{I}_x = \frac{bh^3}{36}$$

$$\bar{I}_y = \frac{b^3h}{48}$$

$$\bar{I}_x = \frac{16\,cm(13.9)^3}{36}$$

$$\bar{I}_x = \frac{16cm(2685.619\,cm^3)}{36}$$

$$\bar{I}_x = \frac{42969.904\,cm^4}{36}$$

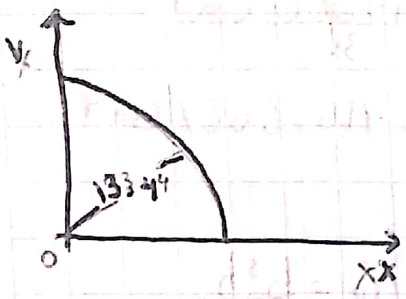
$$\bar{I}_x = 1193.6084\,cm^4$$

$$\bar{I}_y = \frac{(16cm)^3(13.9cm)}{48}$$

$$\bar{I}_y = \frac{4096\,cm^3(13.9cm)}{48}$$

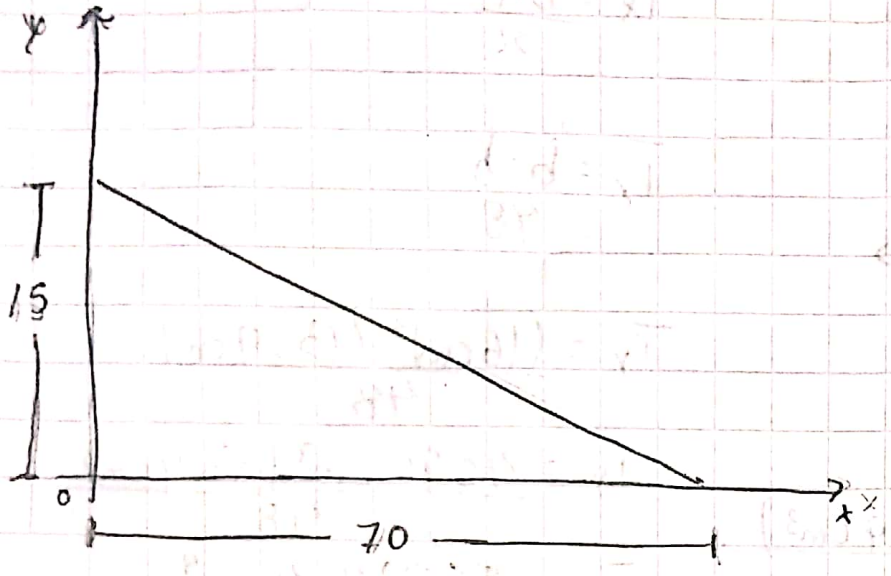
$$\bar{I}_y = \frac{56934.4cm^4}{48}$$

$$\bar{I}_y = 1186.1333\,cm^4$$



$$\bar{I}_x = \bar{I}_y = 0.05488R^4$$
$$= 0.05488(13.4)^4$$
$$\bar{I}_x = 0.05488(32241.7936)$$

$$\bar{I}_x = \bar{I}_y = 1769.4296\,cm^4$$



$$\bar{I}_x = \frac{bh^3}{36}$$

$$\bar{I}_y = \frac{b^3h}{36}$$

$$\bar{I}_x = \frac{70\,cm(15\,cm)^3}{36}$$

$$\bar{I}_x = \frac{70cm(3375\,cm^3)}{36}$$

$$\bar{I}_x = \frac{236250\,cm^4}{36}$$

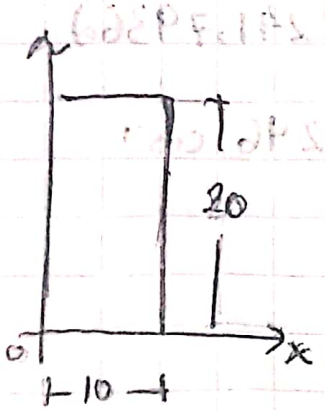
$$\bar{I}_x = 6562.5\,cm^4$$

$$\bar{I}_y = \frac{(70cm)^3(15\,cm)}{36}$$

$$\bar{I}_y = \frac{343000\,cm^3(15cm)}{36}$$

$$\bar{I}_y = \frac{5145000\,cm^4}{36}$$

$$\bar{I}_y = 142916.6667\,cm^4$$



$$\bar{I}_x = \frac{bh^3}{12}$$

$$\bar{I}_x = \frac{10cm(20cm)^3}{12}$$

$$\bar{I}_x = \frac{10cm(8000cm^3)}{12}$$

$$\bar{I}_x = \frac{80000}{12}$$

$$\bar{I}_x = 6666.6666\,cm^4$$

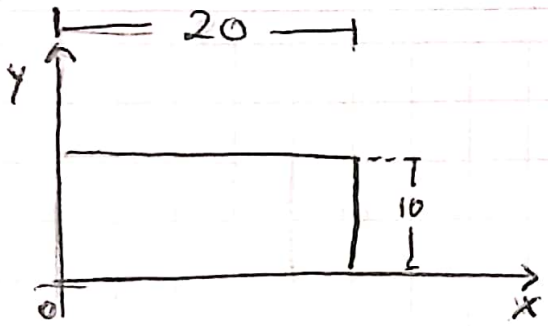
$$\bar{I}_y = \frac{b^3h}{12}$$

$$\bar{I}_y = \frac{(10cm)^3(20cm)}{12}$$

$$\bar{I}_y = \frac{1000cm^2(20cm)}{12}$$

$$\bar{I}_y = \frac{20000cm^4}{12}$$

$$\bar{I}_y = 1666.666\,cm^4$$



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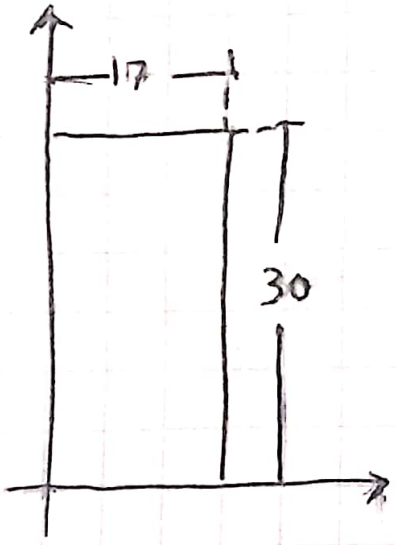
$$\bar{I}_y = 80000\,cm^4/12 = 6666.6666\,cm^4$$



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$$\bar{I}_x = \frac{17cm(30cm)^3}{12}$$

$$\bar{I}_x = \frac{17cm(27000\,cm^3)}{12}$$

$$\bar{I}_x = \frac{459000\,cm^4}{12}$$

$$\bar{I}_x = 38250\,cm^4$$

$$\bar{I}_y = \frac{b^3h}{12}$$

$$\bar{I}_y = \frac{(17cm)^3(30cm)}{12}$$

$$\bar{I}_y = \frac{(4913\,cm^3)(30cm)}{12}$$

$$\bar{I}_y = \frac{147390\,cm^4}{12}$$

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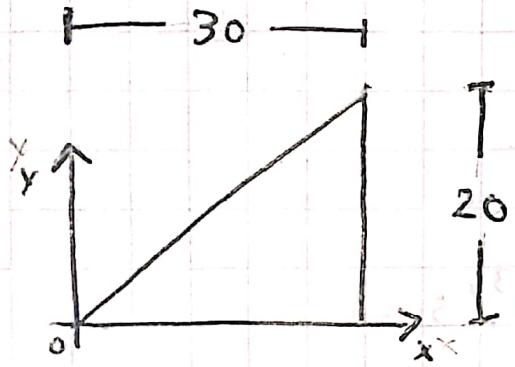

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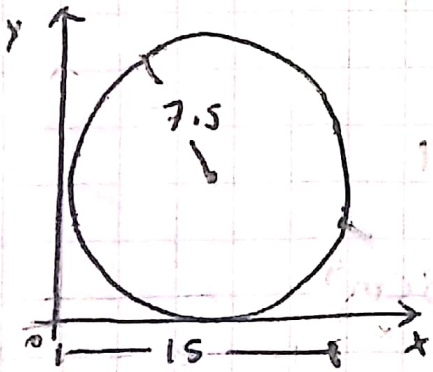

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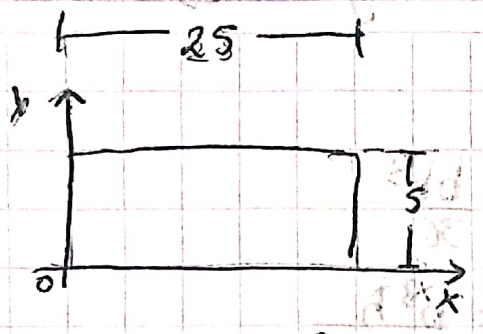

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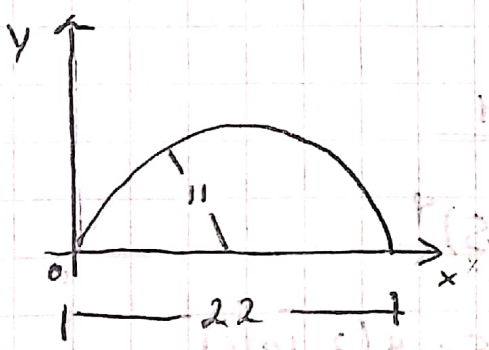

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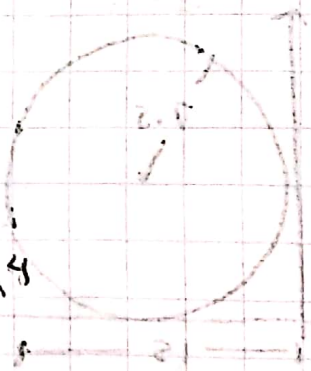

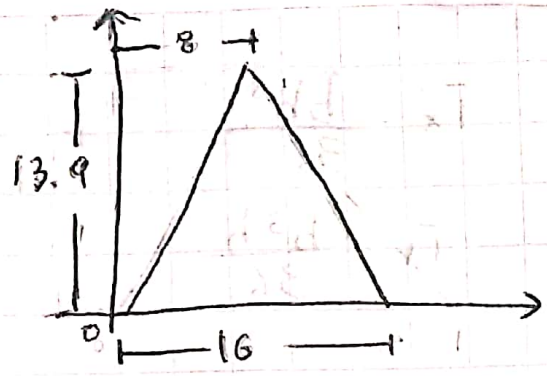

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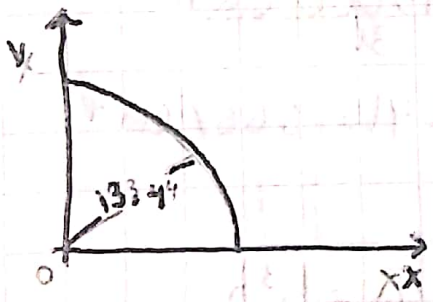

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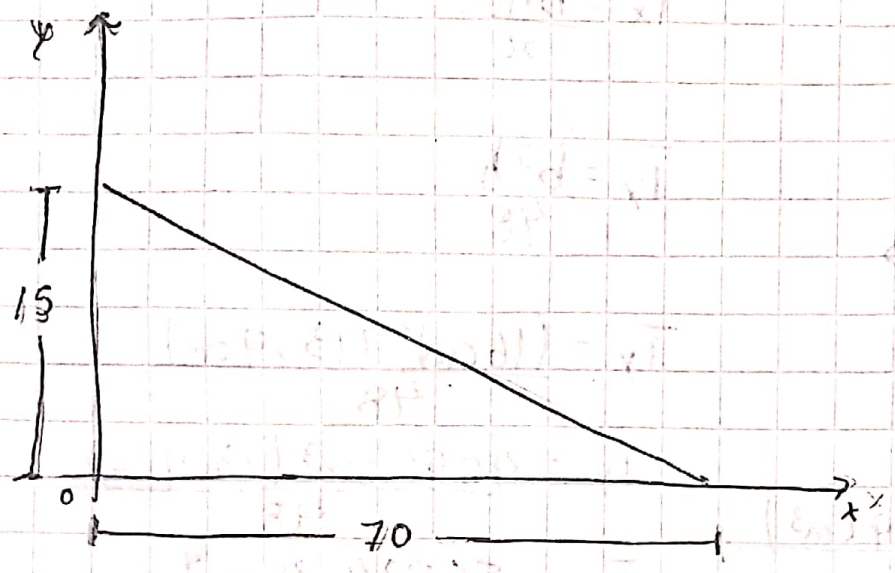

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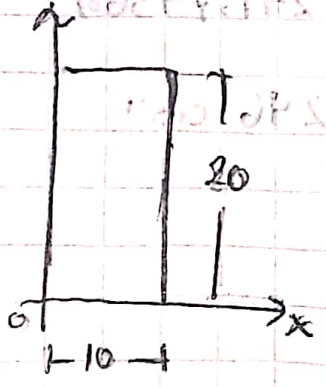

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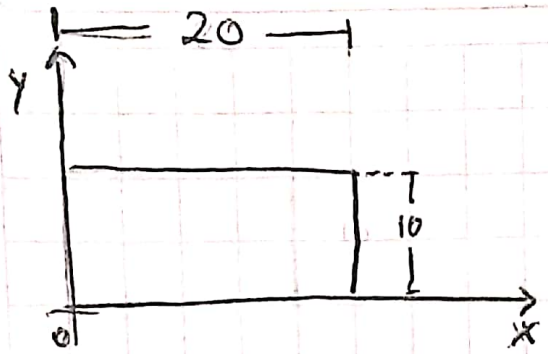

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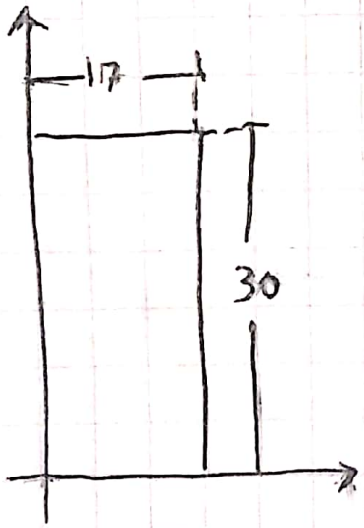

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