



Mi Universidad

Unidad #4

Nombre del Alumno: Zabdiel Núñez Contreras

Nombre del tema: Cálculo del momento de inercia para figuras geométricas comunes en arquitectura

Parcial: Cuarto

Nombre de la Materia: Estática para la arquitectura

Nombre del profesor: Arq. Emanuel de Jesús Román Arellano

Nombre de la Licenciatura: Arquitectura

Comitán de Domínguez Chiapas a 25 de julio de 2025.

Zabdiel Núñez Contreras

Lunes
21 07 25

RECTÁNGULO

1. $b = 8 \text{ cm}$
 $h = 13 \text{ cm}$
 $I_x = \frac{((8)(13^3))}{12} = 1,464.66 \text{ cm}$

$$I_y = \frac{((8^3)(13))}{12} = 554.66 \text{ cm}$$

2. $b = 14 \text{ cm}$
 $h = 10 \text{ cm}$
 $I_x = \frac{((14)(10^3))}{12} = 1,166.66 \text{ cm}$

$$I_y = \frac{((14^3)(10))}{12} = 2,286.66 \text{ cm}$$

3. $b = 15 \text{ cm}$
 $h = 12 \text{ cm}$
 $I_x = \frac{((15)(12^3))}{12} = 2,160 \text{ cm}$

$$I_y = \frac{((15^3)(12))}{12} = 3,375 \text{ cm}$$

4. $b = 12 \text{ cm}$
 $h = 9 \text{ cm}$
 $I_x = \frac{((12)(9^3))}{12} = 729 \text{ cm}$

$$I_y = \frac{((12^3)(9))}{12} = 1,296 \text{ cm}$$

5. $b = 14 \text{ cm}$
 $h = 10 \text{ cm}$
 $I_x = \frac{((14)(10^3))}{12} = 1,166.66 \text{ cm}$

$$I_y = \frac{((14^3)(10))}{12} = 2,286.66 \text{ cm}$$

6. $b = 14 \text{ cm}$
 $h = 12 \text{ cm}$

$$I_x = \frac{((14)(12^3))}{12} = 2,016 \text{ cm}^4$$

$$I_y = \frac{((14^3)(12))}{12} = 2,744 \text{ cm}^4$$

7. $b = 11 \text{ cm}$
 $h = 3 \text{ cm}$

$$I_x = \frac{((11)(3^3))}{12} = 24.75 \text{ cm}^4$$

$$I_y = \frac{((11^3)(3))}{12} = 332.75 \text{ cm}^4$$

CIRCULO

1. $r = 8 \text{ cm}$

$$I_{xy} = \frac{((\pi r^4))}{4} = 3,216.99 \text{ cm}^4$$

2. $r = 8 \text{ cm}$

$$I_{xy} = \frac{((\pi r^4))}{4} = 3,216.99 \text{ cm}^4$$

3. $r = 8 \text{ cm}$

$$I_{xy} = \frac{((\pi r^4))}{4} = 3,216.99 \text{ cm}^4$$

4. $r = 4 \text{ cm}$

$$I_{xy} = \frac{((\pi r^4))}{4} = 201.06 \text{ cm}^4$$

5. $r = 3 \text{ cm}$

$$I_{xy} = \frac{((\pi r^4))}{4} = 63.61 \text{ cm}^4$$

6. $r = 10 \text{ cm}$

$$I_{xy} = \frac{((\pi r^4))}{4} = 7,853.98 \text{ cm}^4$$

7. - $r = 7 \text{ cm}$

$$I_{xy} = \frac{(\pi)(7^4)}{4} = 1,885.74 \text{ cm}^4$$

SEMICÍRCULO

1. - $r = 3 \text{ cm}$

$$I_{xy} = \frac{(\pi)(3^4)}{8} = 31.80 \text{ cm}^4$$

2. - $r = 8 \text{ cm}$

$$I_{xy} = \frac{(\pi)(8^4)}{8} = 1,608.49 \text{ cm}^4$$

3. - $r = 7 \text{ cm}$

$$I_{xy} = \frac{(\pi)(7^4)}{8} = 942.87 \text{ cm}^4$$

4. - $r = 7 \text{ cm}$

$$I_{xy} = \frac{(\pi)(7^4)}{8} = 942.87 \text{ cm}^4$$

5. - $r = 3 \text{ cm}$

$$I_{xy} = \frac{(\pi)(3^4)}{8} = 31.80 \text{ cm}^4$$

6. - $r = 4 \text{ cm}$

$$I_{xy} = \frac{(\pi)(4^4)}{8} = 100.53 \text{ cm}^4$$

7. - $r = 5 \text{ cm}$

$$I_{xy} = \frac{(\pi)(5^4)}{8} = 245.43 \text{ cm}^4$$

CUARTO

1. $r = 5 \text{ cm}$

$$I_{xy} = (0.055)(5^4) = 34.375 \text{ cm}^4$$

2. $r = 15 \text{ cm}$

$$I_{xy} = (0.055)(15^4) = 2,784.375 \text{ cm}^4$$

3. $r = 4 \text{ cm}$

$$I_{xy} = (0.055)(4^4) = 360.85 \text{ cm}^4$$

4. $r = 25 \text{ cm}$

$$I_{xy} = (0.055)(25^4) = 21,484.375 \text{ cm}^4$$

5. $r = 7 \text{ cm}$

$$I_{xy} = (0.055)(7^4) = 132.05 \text{ cm}^4$$

6. $r = 9 \text{ cm}$

$$I_{xy} = (0.055)(9^4) = 360.85 \text{ cm}^4$$

7. $r = 2 \text{ cm}$

$$I_{xy} = (0.055)(2^4) = 0.88 \text{ cm}^4$$

TRIANGULO

1. $b = 15 \text{ cm}$
 $h = 10 \text{ cm}$

$$I_x = \frac{((15)(10^3))}{36} = 416.66 \text{ cm}^4$$

$$I_y = \frac{((15^3)(10))}{48} = 703.125 \text{ cm}^4$$

2. $b = 5 \text{ cm}$
 $h = 3 \text{ cm}$

$$I_x = \frac{((5)(3^3))}{36} = 3.75 \text{ cm}^4$$

$$I_y = \frac{((5^3)(3))}{48} = 7.8125 \text{ cm}^4$$

$$3. \quad \begin{aligned} b &= 15 \text{ cm} \\ h &= 14 \text{ cm} \end{aligned}$$

$$I_x = \frac{(15)(14^3)}{36} = 1,145.33 \text{ cm}^4$$

$$I_y = \frac{(15^3)(14)}{48} = 984.375 \text{ cm}^4$$

$$4. \quad \begin{aligned} b &= 12 \text{ cm} \\ h &= 9 \text{ cm} \end{aligned}$$

$$I_x = \frac{(12)(9^3)}{36} = 243 \text{ cm}^4$$

$$I_y = \frac{(12^3)(9)}{48} = 324 \text{ cm}^4$$

$$5. \quad \begin{aligned} b &= 13 \text{ cm} \\ h &= 15 \text{ cm} \end{aligned}$$

$$I_x = \frac{(13)(15^3)}{36} = 1,218.75 \text{ cm}^4$$

$$I_y = \frac{(13^3)(15)}{48} = 686.56 \text{ cm}^4$$

$$6. \quad \begin{aligned} b &= 3 \text{ cm} \\ h &= 15 \text{ cm} \end{aligned}$$

$$I_x = \frac{(3)(15^3)}{36} = 281.25 \text{ cm}^4$$

$$I_y = \frac{(3^3)(15)}{48} = 8.43 \text{ cm}^4$$

$$7. \quad \begin{aligned} b &= 6 \text{ cm} \\ h &= 9 \text{ cm} \end{aligned}$$

$$I_x = \frac{(6)(9^3)}{36} = 121.5 \text{ cm}^4$$

$$I_y = \frac{(6^3)(9)}{48} = 40.5 \text{ cm}^4$$