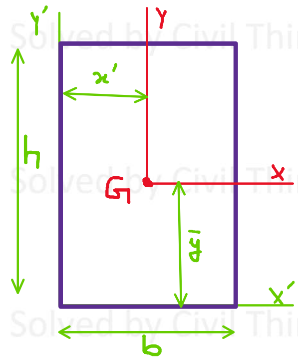
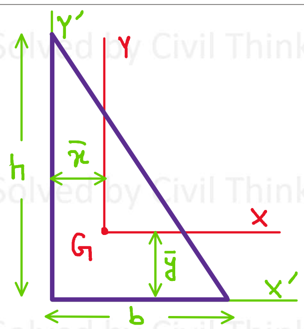
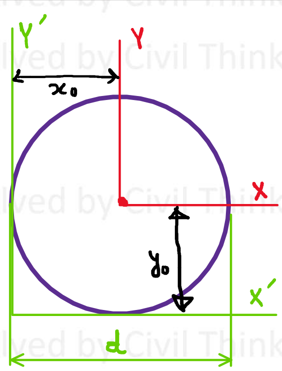
CENTROID AND MOMENT OF INERTIA OF Basic PLANE AREAS: Table: Area, centroid coordinates, Ix and IY

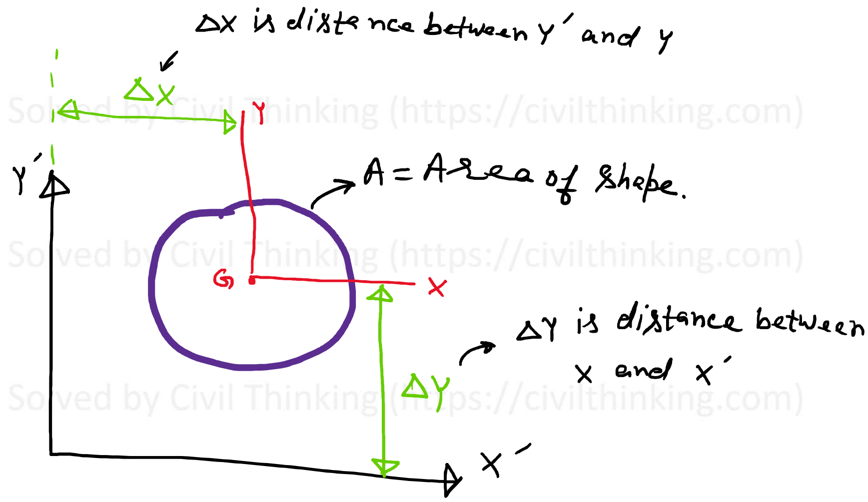
1.Rectangle		$A = bh$ $\bar{x} = \frac{b}{2}$; $\bar{y} = \frac{h}{2}$ $I_x = \frac{bh^3}{12}$; $I_y = \frac{hb^3}{12}$
2. Right Triangle		$A = \frac{1}{2} \cdot b \cdot h$ $\bar{x} = \frac{b}{3}$; $\bar{y} = \frac{h}{3}$ $I_x = \frac{bh^3}{36}$; $I_y = \frac{hb^3}{36}$
3. Circle		$A = \frac{\pi}{4} d^2$ $x_0 = \frac{d}{2}$; $y_0 = \frac{d}{2}$ $I_x = I_y = \frac{\pi d^4}{64}$

Above is the table with centroid/ center of gravity location, Moment of Inertia about x and y axis passing through centroid/center of gravity, I_x and I_y of basic shapes: Rectangle, Triangle and Circle.
You should remember these formulas.
Now to find moment of inertias in any of the shapes about x' axis and y' axis, which pass through a point other than center of gravity, use Theorem of Parallel Axis, as shown in next page.

Theorem of Parallel Axis:
Moment of inertia about an axis that pass through other than axis through center of gravity
= moment of inertia about axis passing through center of gravity
+
(Area of Shape* (distance between the axis about which we are finding the moment of inertia and axis passing through center of gravity)^2)

$$I_{x'} = I_x + A\cdot(\Delta y)^2$$

$$I_{y'} = I_y + A\cdot(\Delta x)^2$$



No need to remember equations of moment of inertias about axis other than those passing through center of gravity.

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