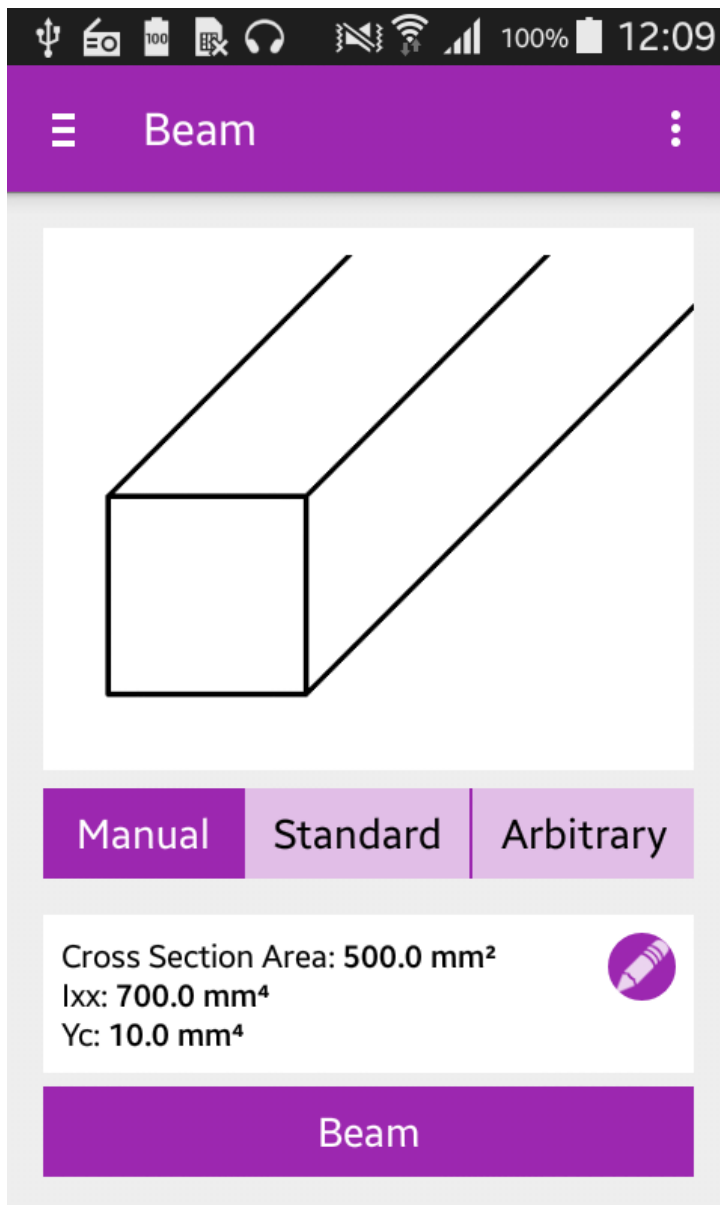


Beam Calculator –Lite

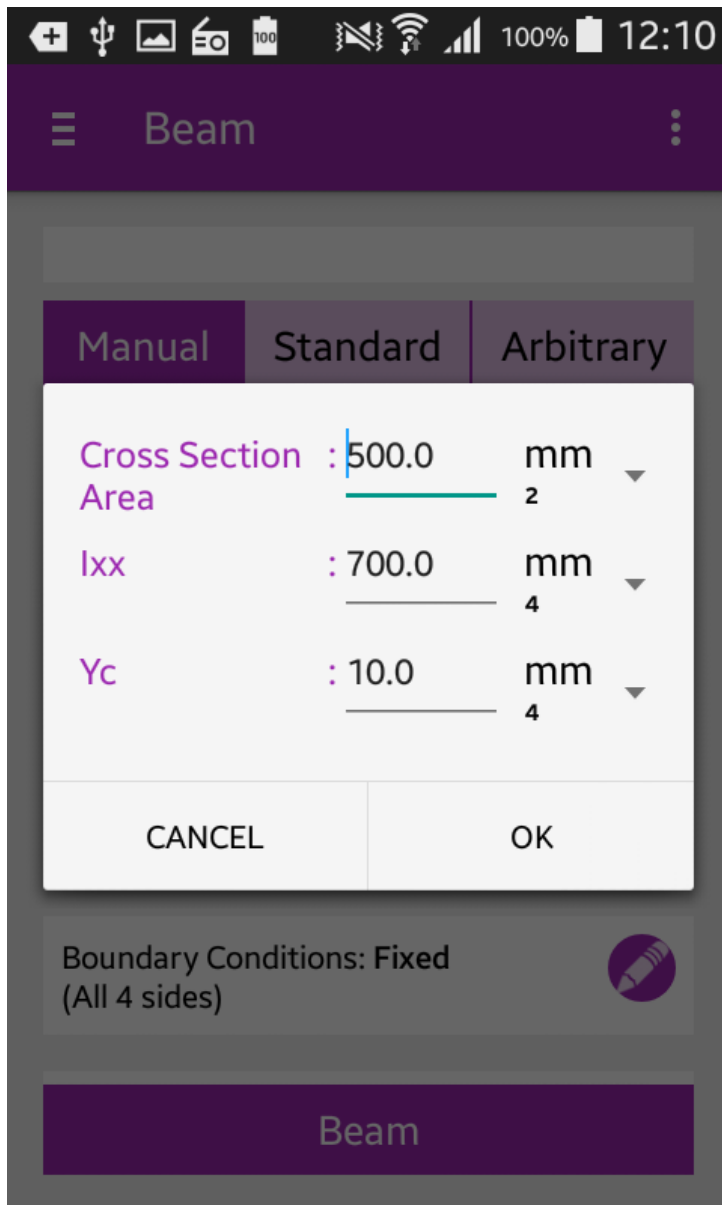
Beam Calculator is used to predict the deflection and stress of beams for various load, material and boundary conditions. Use this app for Beam design and or performance prediction.



Select cross-section input from Manual, Standard or Arbitrary.

- **Manual:** Directly enter beam cross sectional properties.
- **Standard:** Select from a list of standard shapes such as I, C, L, Rectangle.
- **Arbitrary:** Draw non-standard shapes to calculate sectional properties.

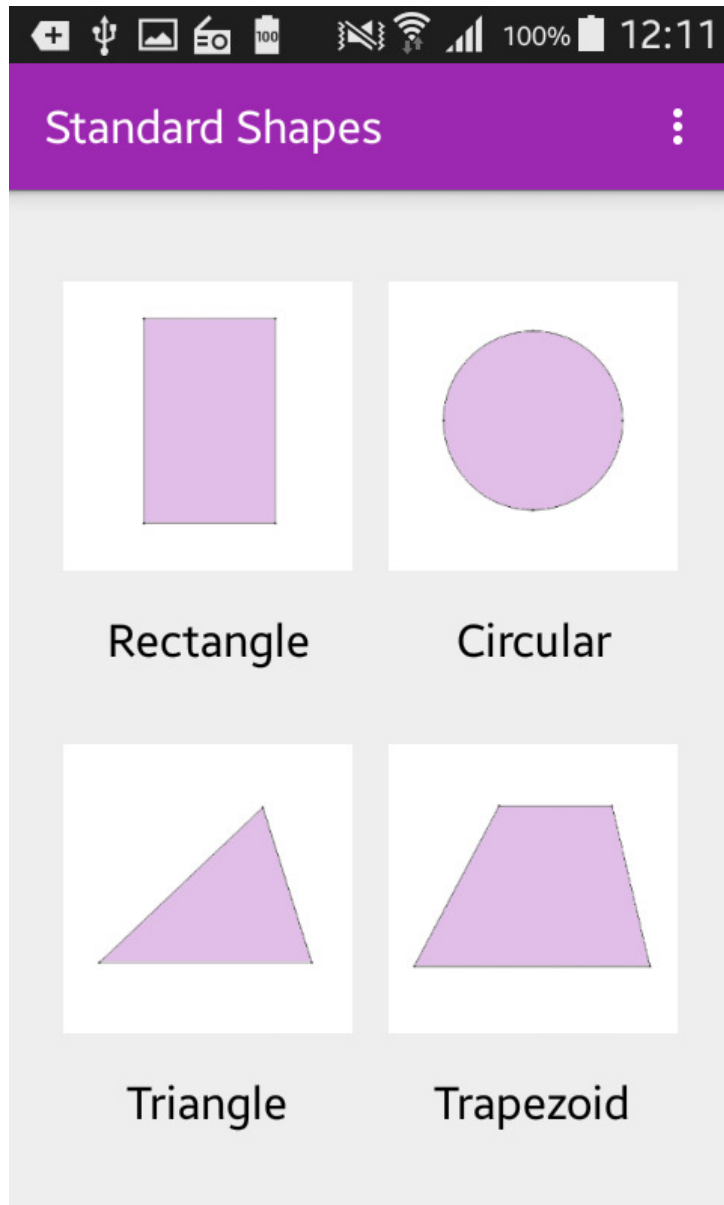
Vertex limit is 50 in lite version (**unlimited vertex points in PRO version**).



Manual Method:

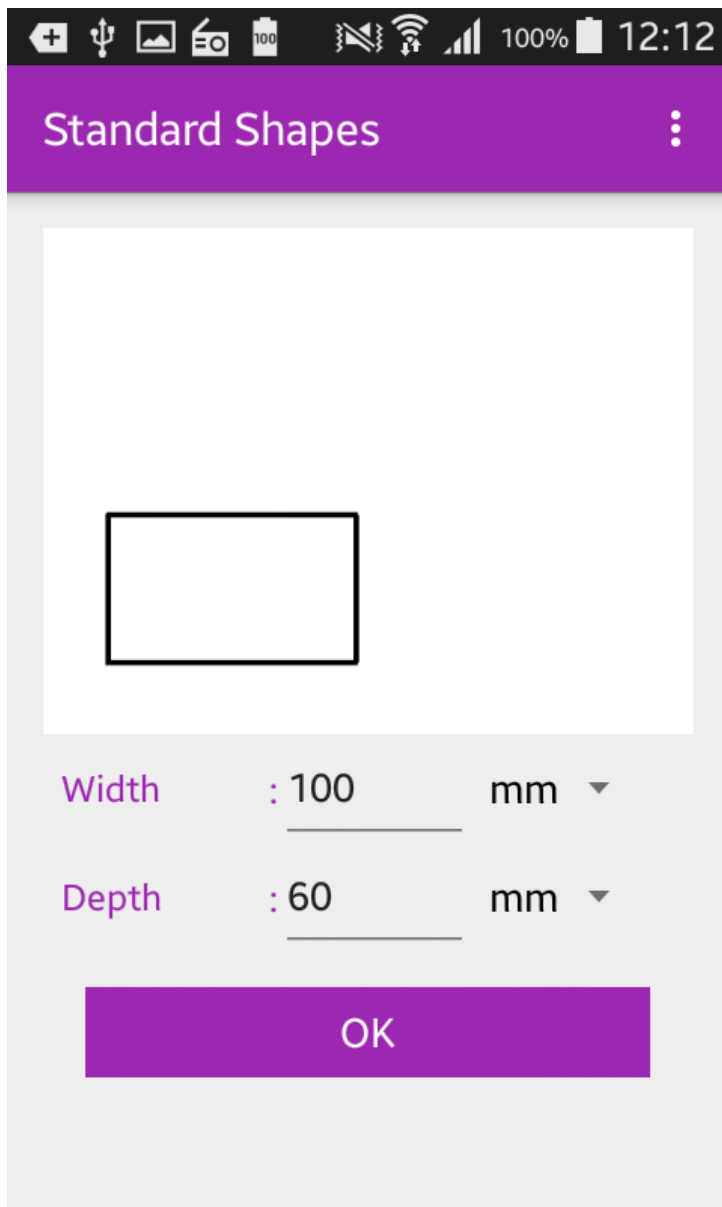
Manually enter the

- Cross-Sectional Area,
- Ixx (Moment of Inertia about X-Axis centroid),
- Yc (Centroidal Distance along Y-Axis).



Standard Method:

Select the Standard Cross section as per requirement.

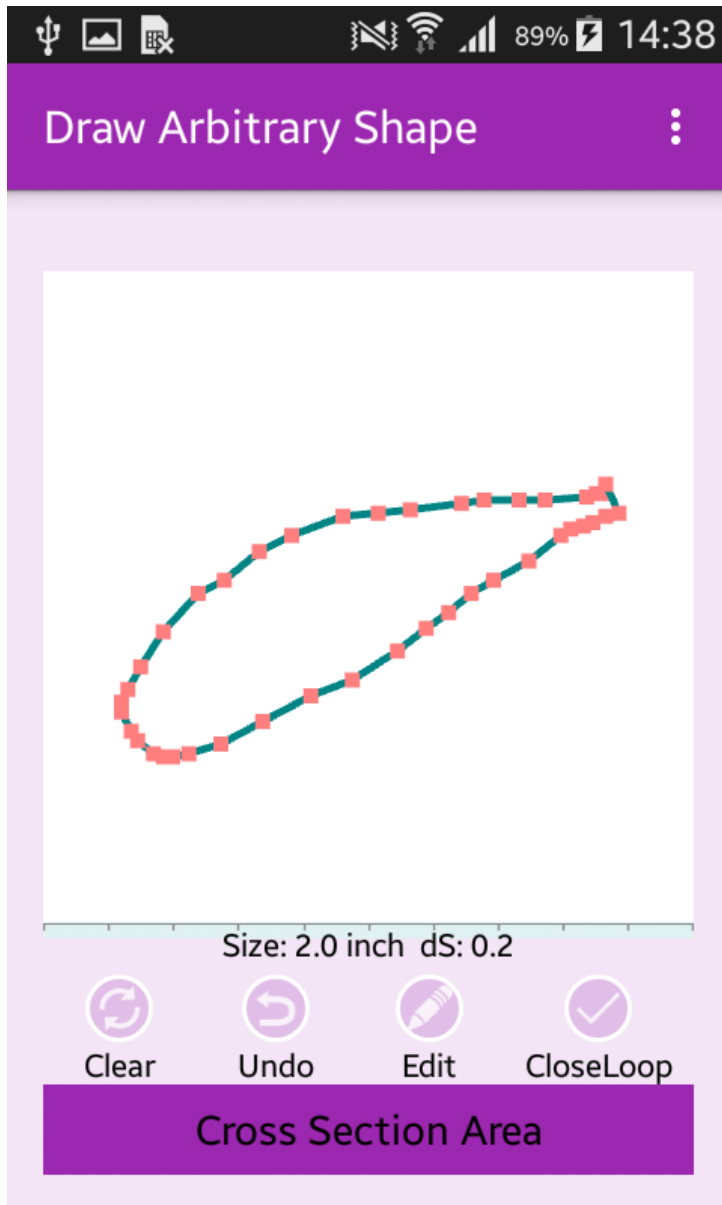


Define the Sectional Dimensions as per in required Units, such as

- Width (W),
- Depth (D),
- Thickness of the Web (T_w),
- Thickness of the Flange (T_f),
- Diameter (D). (as per the geometry)

Review the predicted

- Cross Sectional Area (CSA),
- Moment of Inertia (I_{xx}),
- Centroidal Distance (Y_c).



Arbitrary Method:

Vertex limit is 50 in lite version (**unlimited vertex points in PRO version**).

- Touch or Tap to draw vertex of the geometry.
- Draw free flow geometry by continues touch on the screen.
- Touch/Tap/Draw in a clockwise or counter clockwise pattern to add the vertex points of non-intersecting outer boundary of your geometry.
- If required, add the hole or cut inside the outer boundary, by tapping vertex points of the non-intersecting inner boundary.
- Use Draw: Clear, Undo, Edit, CloseLoop to manipulate your drawings.
- Use Edit button and then Tap a vertex point to enter X, Y coordinates.
- You can also touch and drag a vertex in edit mode.
- Use Clear, Undo, Edit and CloseLoop buttons to finalize your shape.
- Click Calculate MI to prediction the sectional properties.

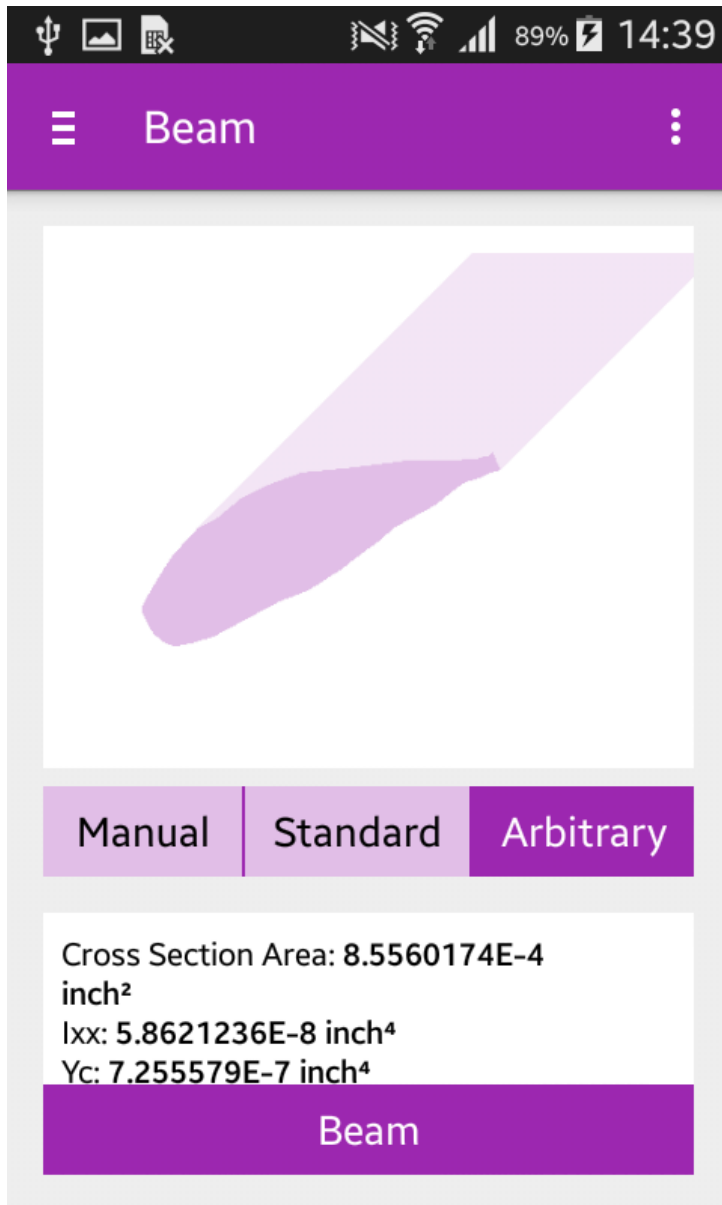
- The Results page will show the final shape, Area, moment of inertia and coordinate properties.
- You can go back to edit the geometry if required.

Tips for Arbitrary:

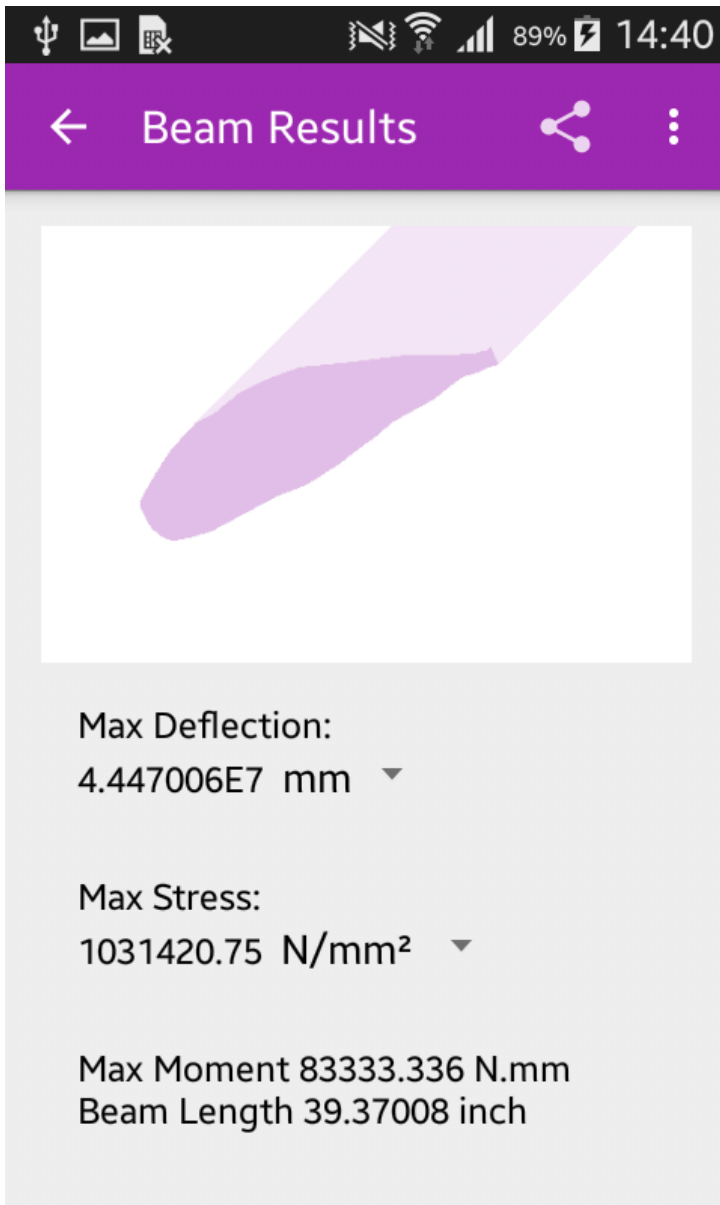
- For curved geometry, use multiple straight line segments.
- Draw a sample shape and then edit by tapping the vertices or x, y coordinates.
- Max draw size is full size of the window with origin at the center.
- Define Clockwise or counter clockwise vertices/ boundary definition.
- Close the geometry before the calculations.
- Crossing of boundary is not allowed and the results should not be used.

Note:

- The results reported by app are valid only for non-intersecting outer and a non-intersecting inner within the outer.



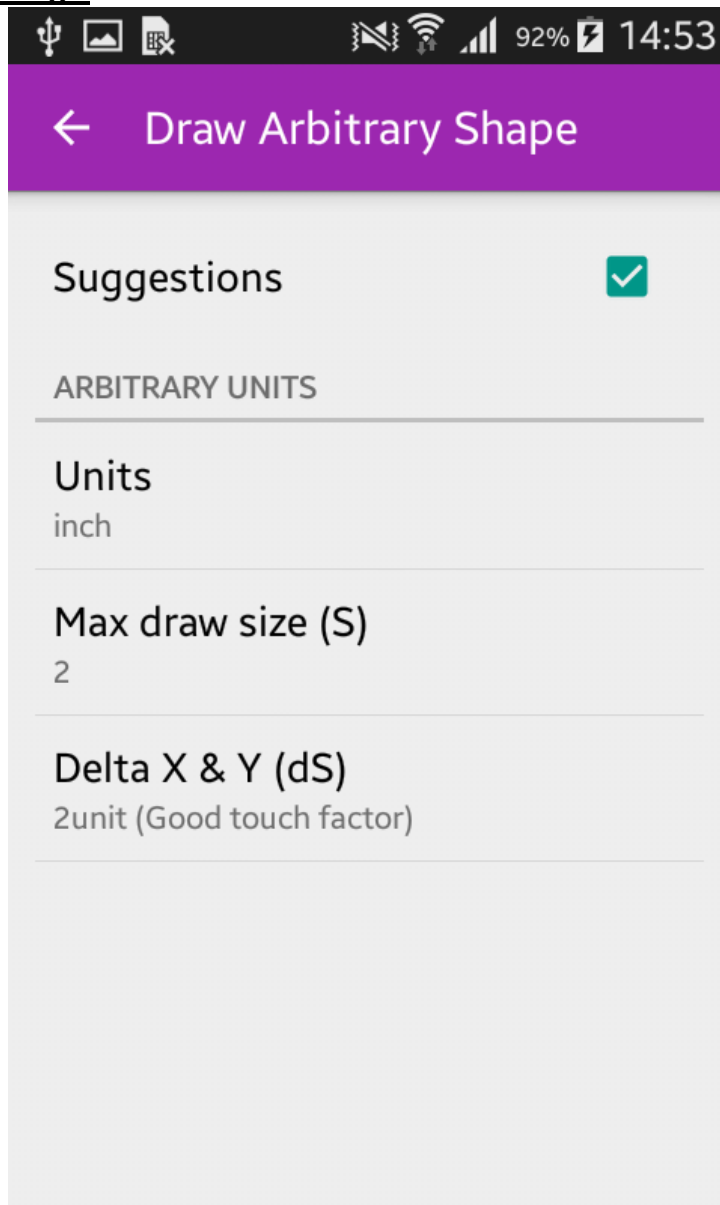
- **Review the calculated**
 - Cross Sectional Area (CSA),
 - Moment of Inertia (Ixx),
 - Centroidal Distance (Yc)
- Define Beam Length, Support, load and Materials:
- Enter the Beam length.
- Select Material type and enter Modulus.
- Select Boundary condition.



Results:

- The results will show,
- Max Deflection
- Max Stress
- Max Moment
- Beam Length

Settings:



- Enable settings: Check for auto suggestions/tips.
- Measuring Unit: Tap and select mm or inch
- Max Draw Size (S): Set this to any size. Set to the maximum size of your shape.
- Delta X and Y (dS): Set Snap size and touch factor sensitivity to edit the vertex points.