

- Indian income tax return

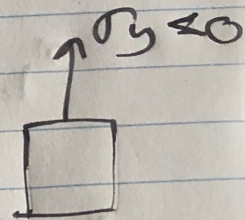
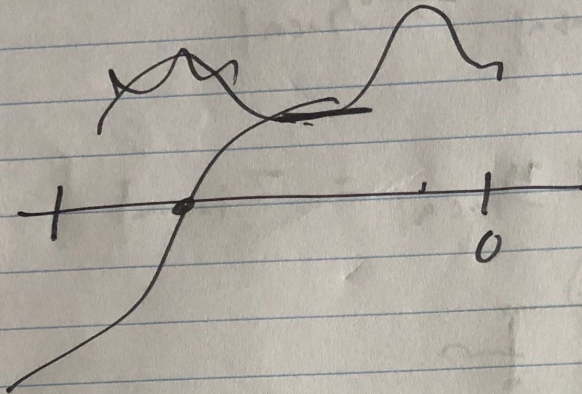
N 529 66 05

0.001

0.01

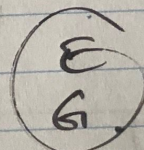
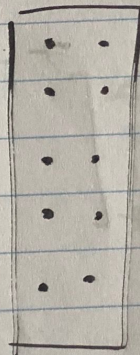
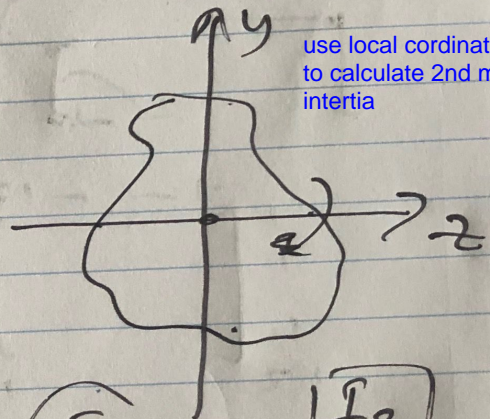
0.0001 kPa

- Tunnel medical insurance
- bank statements

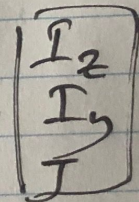


1 kPa

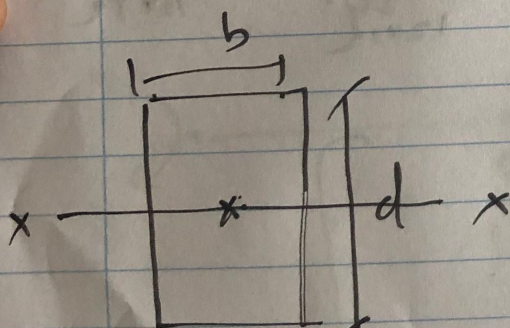
use local coordinate system to calculate 2nd moment of inertia



material properties



section prop



eg:- around xx axis (check this on the internet)

$$I_{xx} = \frac{bd^3}{12}$$

$$J = \frac{bh}{12} (h^2 + b^2)$$

J is like Ix

$$E = 200\,000\,000 \text{ kPa} \quad \text{for steel}$$

$$G = \frac{AE}{2(1+\nu)} \quad \nu = 0.3$$

Generating element
stiffness matrix (No overlappings)

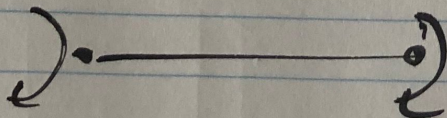
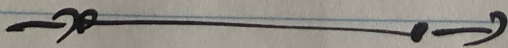
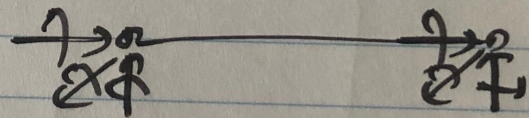
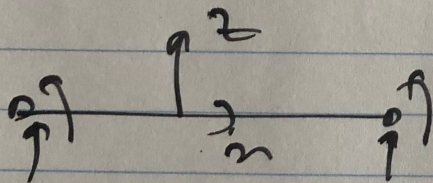
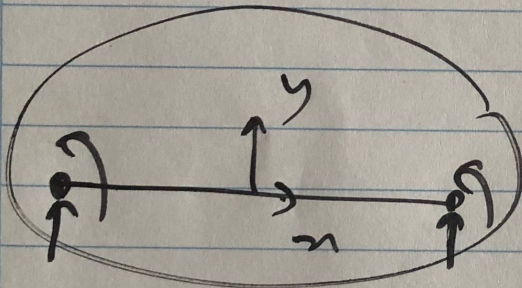
No: _____

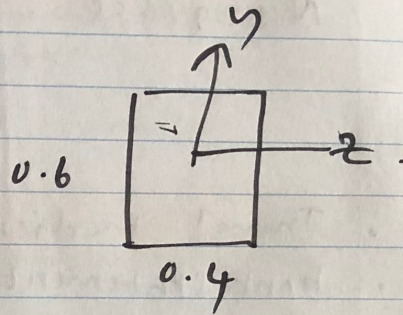
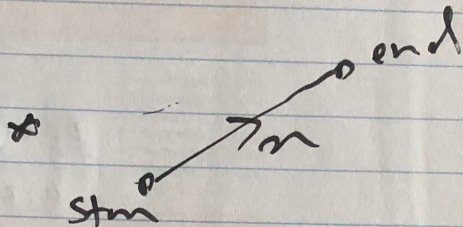
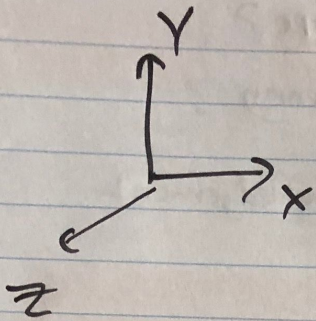
Date: ____/____/____

Diagram of a beam element with nodes 1 and 2, and degrees of freedom 1, 2, 3, 4, 5, 6.

$$\begin{matrix}
 1 \\
 2 \\
 3 \\
 4 \\
 5 \\
 6
 \end{matrix}
 \begin{bmatrix}
 \frac{EA}{L} & 0 & 0 & 0 & 0 & 0 \\
 0 & \frac{EA}{L} & 0 & 0 & 0 & 0 \\
 0 & 0 & \frac{12EI_z}{L^3} & 0 & 0 & 0 \\
 0 & 0 & 0 & \frac{EA}{L} & 0 & 0 \\
 0 & 0 & 0 & 0 & \frac{EA}{L} & 0 \\
 0 & 0 & 0 & 0 & 0 & \frac{EA}{L}
 \end{bmatrix}
 \begin{matrix}
 7 \\
 8 \\
 12
 \end{matrix}$$

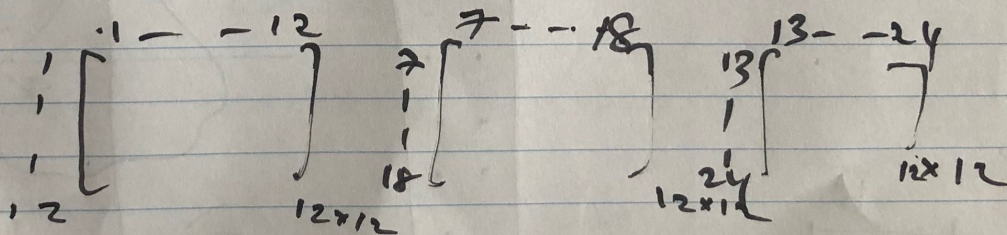
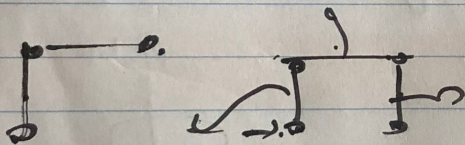
12x12





$$x_{local} \times z_{global} \rightarrow y_{local}$$

$$x_{local} \times y_{local} = z_{local}$$



assembling for structure stiffness matrix (Element stiffness matrices should refer global coordinate system)

