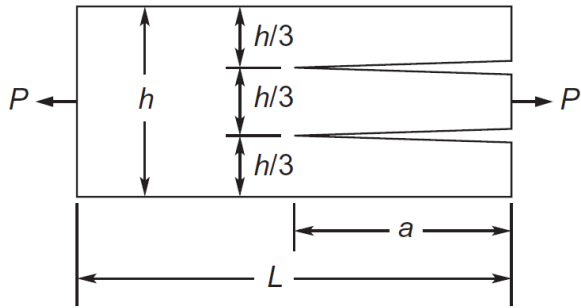
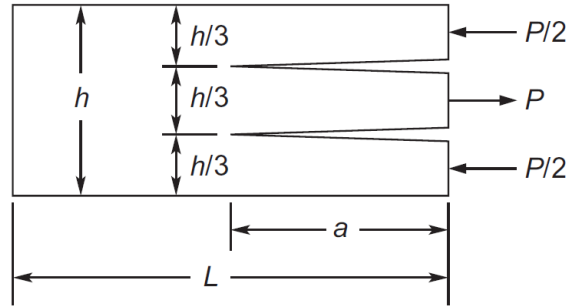


1- Consider the cracked beam subjected to uniaxial tension shown in following figures. Find the strain energy release rate (per crack tip). Consider both fixed end and constant force boundary conditions.

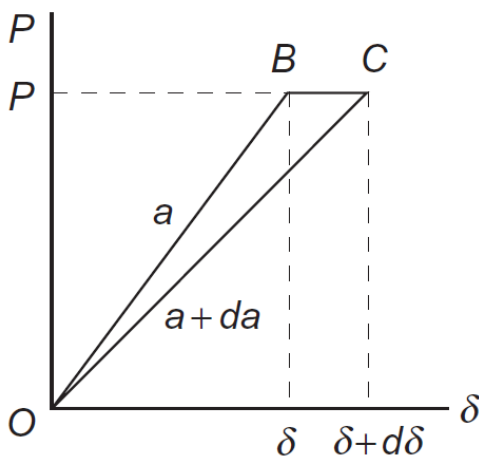


I) A cracked beam subjected to tension.

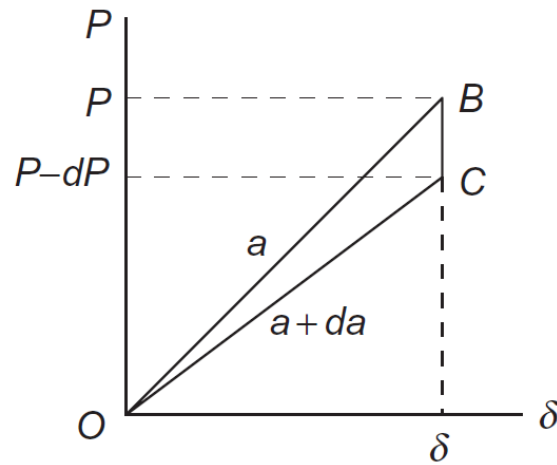


II) A cracked beam subjected to tension and compression.

2- Show that the area OBC in following figure does not depend on the loading condition during crack extension.



(a)



(b)

Energy released during crack extension: (a) constant load, (b) constant displacement.