# Analysis of forming –Upper bound Analysis

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# Table of Contents

## Analysis of forming –Upper bound analysis

# 1. Quiz - Key:

1. Define upper bound theorem.

For a given set of velocity fields, the velocity field which minimizes the total energy is the nearest to the actual solution.

2. Suppose you consider axisymmetric upsetting of a disc of radius R and height h. Write down the expressions for radial and axial strain rates of the disk element.

   Strain rate along axial direction = Vd/h

   Strain rate along radial direction $= \frac{Vd}{2h}R$   because, we have $\dot{\varepsilon}_\theta = \dot{\varepsilon}_r$ for homogeneous deformation and continuity.