Name: _____ **Roll no.** _____

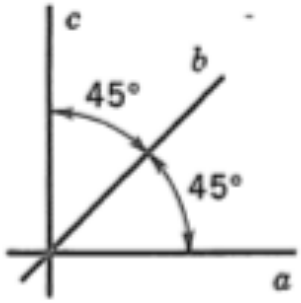
Department of Aerospace Engineering, Indian Institute of Technology, Madras.

AS 2010: Basic strength of materials. Quiz 7

1. The readings of a 45° strain rosette are

$$\epsilon_a = 1200 \times 10^{-6},$$
$$\epsilon_b = 400 \times 10^{-6},$$
$$\epsilon_c = 60 \times 10^{-6}.$$

Find the principal strains in the plane of the rosette.



Name: _____ **Roll no.** _____

Department of Aerospace Engineering, Indian Institute of Technology, Madras.

AS 2010: Basic strength of materials. Quiz 7

2. At a point in a body in plane strain, the strain components are

$$\epsilon_{xx} = -800 \times 10^{-6},$$
$$\epsilon_{yy} = -200 \times 10^{-6},$$
$$\gamma_{xy} = -600 \times 10^{-6}.$$

Show in a sketch the location of the axes with which the maximum shear strain is associated. Show the deformed shape of the element which was originally a parallelepiped, with its faces parallel to these axes.