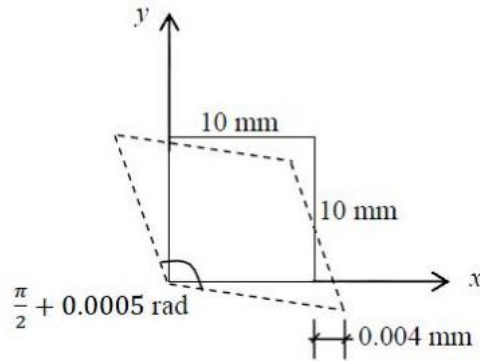


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Problem-SOM

In a material under a state of plane strain, a 10×10 mm square centered at a point gets deformed as shown in the figure.



If the shear strain γ_{xy} at this point is expressed as $0.001k$ (in rad), the value of k is

- (A) 0.50
(C) -0.25

- (B) 0.25
(D) -0.50

for shear stresses

502h

Change in angle b/w two perpendicular side is shear strain due to applied shear stress. It is positive when angle decreases on the sides where shear stresses are acting in opposite axis direction.

Here $\frac{\pi}{2} - \gamma_{xy} = \frac{\pi}{2} + 0.0005$

$\gamma_{xy} = -0.0005$

Given $\gamma_{xy} = 0.001k$

So $k = -0.50$

Ans [D]