

# Optimal

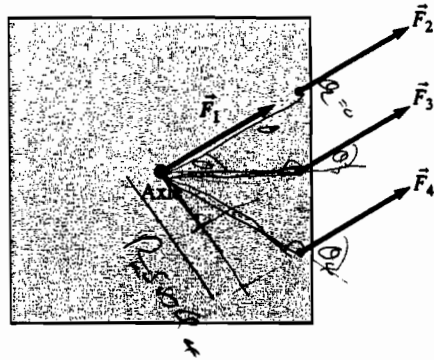
## 13.5 Rotation About a Fixed Axis

22. A square plate can rotate about an axle through its center. Four forces of equal magnitude are applied to different points on the plate. The forces turn as the plate rotates, maintaining the same orientation with respect to the plate. Rank in order, from largest to smallest, the angular accelerations  $\alpha_1$  to  $\alpha_4$ .

Order:  $\alpha_4 > \alpha_3 > \alpha_2 = \alpha_1$

Explanation:

$\alpha_4$  has the biggest component of perpendicular radius, and the question is determined by  $r \sin \theta$ , on  $\alpha_2$  and  $\alpha_1$ , the  $\theta = 0$  so  $\sin \theta = 0$ .



✓  
@ Excellent

Clear understanding