

- 4.15.** (a)  $\omega: + \alpha: +$  Rotation is counterclockwise and increasing in the counterclockwise direction.  
(b)  $\omega: - \alpha: +$  Rotation is clockwise and decreasing, so the angular acceleration is counterclockwise  
(c)  $\omega: + \alpha: -$  Rotation is counterclockwise and decreasing, so the angular acceleration is clockwise.  
(d)  $\omega: - \alpha: -$  Rotation is clockwise and increasing in the clockwise direction.