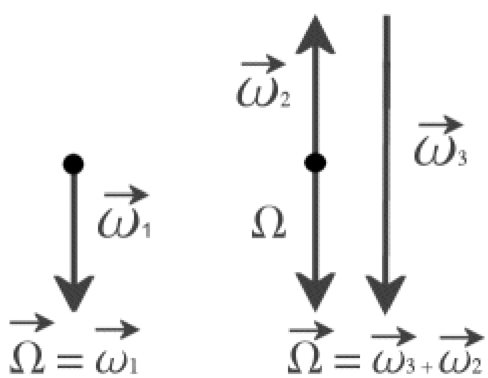
Answer #296

The answer is (b): I will begin rotating on the chair clockwise as viewed from above, as seen in an mpeg video by clicking your mouse on the photograph below.

This can be verified theoretically using the standard notation for vector angular momentum: curl the fingers of your right hand in the direction of the rotating or spinning object and your extended thumb points in the direction of its angular momentum vector. When I am at rest the total angular momentum is that of the wheel rotating clockwise, which is represented by a vector pointing downward, as seen on the left in the diagram below. Because the chair is on a very low-friction bearing that creates negligible frictional torque, the *total* angular momentum must remain constant as I flip the wheel. Because the angular momentum vector of the inverted wheel, spinning counterclockwise as viewed from above, is pointed *upward*, the chair with me on it must begin to rotate clockwise, compensating for the change in angular momentum of the wheel, a seen in the video.



So here is the next question: What will happen when I rotate the bicycle wheel back to its original position?

After you have made your determination of what should happen, click here to see a video of the action.

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For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.