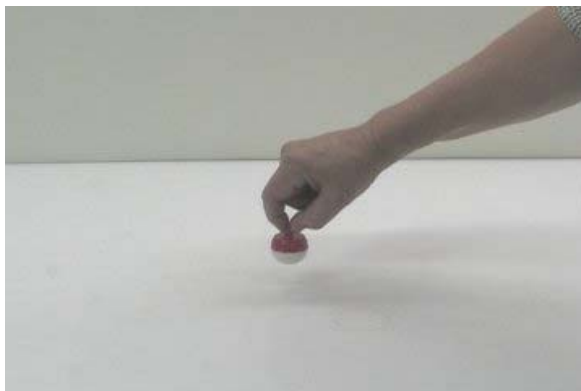
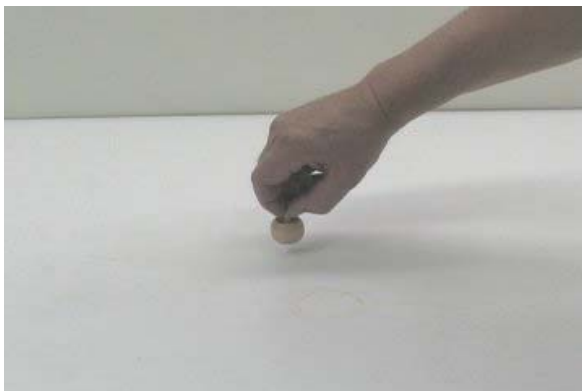


Answer #323

The answer is (d): the top will turn upside-down and rotate on the tip of its stem, as seen in an mpeg video by clicking your mouse on the photograph at the left below.



A different tippe top is seen in action by clicking your mouse on the photograph at the right above.

Although the center of mass rises when the top inverts itself, this rise and the change in the relationship between kinetic and potential energy is driven by frictional torque between the top and the surface of the table.

This is a fairly complicated gizmo, that works similarly to a spinning football that rises up on its end when spun on the ground with its long axis horizontal. There are many explanations, and if you wish to really understand it the best thing to do is to do a web search to find an explanation at a level with which you are comfortable.



This problem has vexed physicists for generations, spawning a large number of articles in professional journals as well as, more recently, extensive discussions on internet mail groups. Above is a very famous photograph of the great physicists Wolfgang Pauli and Niels Bohr watching a spinning tippe top.

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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](#).