

Abstract Submitted
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The High Road/Low Road Demonstration or Birds on a Wire
JACOB CADY, CHAD MIDDLETON, Mesa State College — Consider two separate tracks of equal horizontal distances and initial and final heights. One track remains at this initial height while the other angles down, levels out, and then angles back up in order to regain its original height. Question: If two identical balls are set rolling with equal initial speeds, which ball completes the track in a shorter time interval? In this manuscript, the dynamics of a ball on each track are analyzed using basic Newtonian mechanics. We calculate the time necessary to complete each path in terms of the parameters of the track and the initial velocities of the balls. We derive an expression for the time difference between the two tracks and compare this to data taken on a set of high road/load road tracks, hence demonstrating the fact that the ball traversing the low road always wins the race.

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