

Descent Time on Curved Inclines

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One of the many joys a working knowledge and expertise in calculus and its offshoots (e.g., differential equations) afford us is the application of calculus to physics problems for which we have developed ample intuition from our casual observations of phenomena in the material world. Falling objects, whether in free falls or on inclines, are understood quite intuitively by us. However, the mathematical treatment of these physics problems are unimaginably foreign to our intuitive eye. In this article, we revisit the classic problem of determining the curve for the time of descent on a curved surface—usually known as the curve for shortest time of descent or the brachistochrone curve—in a style that is aimed for teachers and their students who have acquired a working knowledge of calculus and differential equations.

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