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**Ball launched against an inclined plane – an example of using recurrent sequences in school physics.**

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Summary: This note gives the solution to the motion of a perfectly hard ball that was launched against a perfectly hard inclined plane. The solution comprises recurrent formulas that give the parts of the trajectory between the impacts, which are parabolas. In the upward part of the motion, the parabolas become higher and narrower, in the downward part they become lower and wider. Using an interactive spreadsheet model, the law of energy conservation is verified, and the effect of inputs on the shape of the trajectory is examined. Two special cases of the motion are of particular interest when the upward and downward parts of the trajectory merge into one. The solution illustrates the use of recurrent sequences in physics, and computer investigation into a dynamic physical system.

*Classification:* M55 R75

*Keywords:* bouncing ball; incline plane; trajectory; spreadsheets; mechanics; physics; mathematical modelling

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