Cat and Mice (2017 North American Qualifier – NAQ):

https://open.kattis.com/problems/catandmice

Arup's solution is here:

http://www.cs.ucf.edu/~dmarino/progcontests/mysols/collegeother/nag/2017/catandmice.java

You binary search the initial velocity, and given an initial velocity, you run the DP. Pre-computing the distances saves some time.