

Name: _____

Date: _____

Section C D F

Projectile Motion Worksheet

1. In our movie clip, Randall Rains (Nicolas Cage) is a car thief trying to escape the police. During his escape, he *almost* gets trapped as he finds traffic blocked by an accident on the highway. Luckily, a tow truck positioned at just the right place, at just the right time, and (*hey, what do you know?*) in just the right direction is available. So Rains decides to jump over the entire accident site. Let's assume that he launches at 100 mph (approximately 45 m/s), and that the bed of the tow truck is inclined at an angle of 60° .
 - a. If the average length of cars on the road is 10 m (considering paramedics trucks, fire trucks, tow trucks) how many cars can Rains fly over?
 - b. If the last car was a paramedics truck, with a vertical roof height of 5 meters, by how much does Rains clear the truck? (Assume the far edge of the truck is 170 m from launch)

2. A daredevil plans on jumping a 60 m wide canyon with his motorcycle, assumed to be at the same height on both sides. To do so, he positions a jump inclined at 40° .
- a. What minimum speed must he achieve to clear the canyon? (*Hint: You do not know V_i , use system of equations using the fact that $\Delta t_x = \Delta t_y$*)