IB-2 Physics

Projectile Motion Practice

1. The cliff divers of Acapulco push off horizontally from rock platforms about 35 m above the water, but they must clear rocky outcrops at water level that extend out into the water 5.0 m form the base of the cliff directly under their launch point. What minimum pushoff speed is necessary to do this? How long are they in the air?

2. When Babe Ruth hit a home run over the 12-m-high right-field fence 95 m from home plate, roughly what was the minimum speed of the ball when it left the bat? Assume that the ball was hit 1.0 m above the ground and its path initially made a 40° angle with the ground.

3. An automobile traveling 95 km/h overtakes a 1.00-km-long train traveling in the same direction on a track parallel to the road. If the train’s speed is 75 km/h, how long does it take the car to pass it and how far will the car have traveled in this time?