Example: Solve: Angle of entry (trajectory) = 30° and the distance to the building is 300 feet. Height of the shooter above the horizon = ________________

Example Scenario: A victim is shot from a bullet that came through his car window. Witnesses saw a muzzle flash from a nearby building, but were unsure from which floor the flash originated. The bullet entered the victim at a height of 4 ft. above the ground. The car is located 40 ft from the building. The angle of trajectory is found to be 12°. Determine the height from which the bullet was fired. Show All Work!

Scenario 1: Witnesses saw a victim fall while riding his bike. He had been struck in the head by a bullet. When the crime-scene investigators arrived, they calculated the angle of elevation of the shooter to be about 6.5°. The distance to the building from which the bullet was fired was 152 feet, and the height of the entry wound on the victim while on his bike measured 6 feet above the ground. Determine the height from which the bullet was fired. Show All Work!

Scenario 2: A man is shot from a hotel window while sitting on the hood of his car. The trajectory angle is found to be 25°. The car is 100 feet from the building in which the shooter was located. The victim’s head is calculated to have been located 5 ft above the ground. Determine from which floor the bullet was fired. Assume that each floor is 10 ft. Show All Work!
Scenario 3: A victim is shot from a bullet that came through his apartment window. His wife saw a flash of smoke from a nearby apartment building. The man and his wife live on the third floor of their building. The trajectory angle is found to be 25° and it is 50 ft away from the next building. Determine from which floor the bullet was fired. Assume that each floor is 10 ft. Show all work!

Questions:
1. For the scenarios listed above, list 3 problems that might interfere with the accuracy of your results.

2. What problems would be encountered if we couldn’t accurately determine the trajectory angle?

3. Solve: Angle of entry (trajectory) = 15° and the distance to the building is 700 feet Height of the shooter above the horizon = ______________

4. Solve: Angle of entry (trajectory) = 35° and the distance to the building is 85 feet Height of the shooter above the horizon = ______________

5. Solve: A bullet hole left behind at a crime scene measures 6 mm by 10 mm. Distance to nearest building is 250 ft. Angle of entry (trajectory) = ______________ Height of the shooter above the horizon = ______________

6. Solve: A bullet hole left behind at a crime scene measures 2 mm by 5 mm. Distance to nearest building is 100 ft. Angle of entry (trajectory) = ______________ Height of the shooter above the horizon = ______________