**Firearms and Trajectory Worksheet Key**

Calculation using Distance vs. Drop

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23.9 inches | = |  | (c)\_\_\_\_ |  |
| 23.5 inches |  | 720 inches | | |

1. = \_732.3 inches\_

Hypotenuse = distance to the shooter

a = distance to the building b = height of shooter from horizon (not ground)

Hypotenuse2 = (a)2 + (b)2

(732.3 in)2 = (720 in)2 + b2

\_536,300 in2 = 518,400 in2 + b2

\_536,300 in2 - 518,400 in2 = b2

\_\_17,900 in2 = b2

* 1. = \_133\_in ~ \_11ft

1. What was the distance to the shooter (c)? **732.3 inches**
2. The distance to the building is 60 feet then based on the Hypotenuse the Height of shooter ~ **\_(133 in) or 11\_** feet above the horizon.
3. Prediction, the bullet was fired from which floor ? **second**
4. List problems that might interfere with the accuracy of your results?

**inconsistent or no witnesses, multiple entrance wounds on victim from multiple locations, evidence contaminated, (answers may vary)**

1. What problems would be encountered if you couldn’t accurately determine the trajectory

angle?

**Unable to locate shooter, unable to locate additional evidence, case will be difficult to close. If suspect is eventually found, when case goes to court, it will be difficult to convict with questionable evidence.**

6. Draw lines illustrating how you arrived at your conclusion

**The shooting occurred 15 feet above the ground; thus, the line should be on the second floor**

(adapted from A. Bertino - Forensic Science)