

Name: _____

Date: _____

Section C D F

Projectile Motion II - Angled

1. A ball is fired from the ground with an initial speed of 1.70×10^3 m/s (approximately five times the speed of sound) at an initial angle of 63.0° to the horizontal. Neglect air resistance.
 - a. Find the ball's horizontal range.

 - b. Find the amount of time the ball is in motion.

2. A daredevil is shot out of a cannon at 43.0° to the horizontal with an initial speed of 24.0 m/s. A net is positioned a horizontal distance of 50.0 m from the cannon. At what height above the cannon should the net be placed in order to catch the daredevil?

3. A place kicker must kick a football from a point 36.0 m (about 40.0 yd) from the goal, and the ball must clear the crossbar, which is 3.05 m high. When kicked, the ball leaves the ground with a speed of 26.0 m/s at an angle of 55° to the horizontal.
- By how much does the ball clear the crossbar?
 - Does the ball approach the crossbar while still rising or while falling? (Hint: If $V_{f,y}$ is positive, the ball is still rising, if $V_{f,y}$ is negative, the ball is falling)
 - What is the vertical component of velocity of the ball at this time?