Unit 2 Workhseet 3: Class Race on Projectile Motion Problems QUESTION 1

A county sheriff is trying to determine the speed of a car that slid off a small bridge on a snowy New England night and landed in a snow pile 4.0 m below the level of the road. The tire tracks in the snow show that the car landed 12.0 m measured horizontally from the bridge. (a)How fast was the car going when it left the road? (b)If the small bridge was 6.0 m high, would it land more or less than 12.0 m away? How do you know?

Class Race on Projectile Motion Problems – QUESTION 2

A cannonball is launched at a 38° angle with a speed of 48 m/s. (a) Where will the cannonball land? (b) If it was launched at an angle greater than 38^{o}, would the cannonball be in the air for more time or less time? How do you know?

Class Race on Projectile Motion Problems QUESTION 3

A man wants to throw a rock that when at the top of its path passes through a hoop that is 15 meters off the ground. The man will release the rock 2 meters above the ground. The man can throw the rock at a speed of 30 m/s, (a) what angle does he need to throw the rock at to go through the hoop? (b) How far away should the hoop be from the man? (c) If he threw it at a greater speed at the same angle found in part (a)

Class Race on Projectile Motion Problems QUESTION 4

Suppose a ramp is tilted downwards as shown below. If the sphere leaves the ramp at 1.5 m/s and the bottom of the ramp is 0.9 m above the floor, calculate the range of the ball and its overall velocity just before it hits the floor (you don't need the angle it hits the floor with).