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Physics - Projectile Motion Practice (Round 1)

1. An archer defending a fortress in Rome shoots an arrow at the enemy at a 30.0° angle with the horizontal. It has a velocity of 49 m/s.

 a. How long will it be in the air?

 b. How high will it go?

 c. What horizontal distance will the arrow travel?

2. A Marine soldier in WWII sets a mortar at a 45° angle. If the mortar shoots the projectile at 100 m/s.

a. How long will it be in the air?

 b. How high will it go?

 c. What horizontal distance will the projectile travel?

3. Ancients Greeks are launching a catapult at a 40° angle. They must hit the wall of the fortress that is 100m away.

1. What must the initial velocity be in order to hit the wall?

4. In a scene in an action movie, a stuntman jumps from the top of one building to the top of another building 4.0 away. After a running start he leaps at a velocity of 5.0 m.s and an angle of 15° with respect to the flat roof. (hint: use new equations)

1. Will the stuntman make the jump? Or he will fall to his demise?