

Projectile Motion Quiz

- **What is a Projectile?**

An object that is projected (by an initial **1*** _____) and continues (by **2*** _____).

- **Projectile Motion**

- An object that is projected without gravity being present – just goes straight.
- **3*** _____ projected objects in gravity curve downwards.
- **4*** _____ projected objects in gravity go straight up, then straight down.
- **5*** _____ projected objects in gravity curve upwards, then downwards.
- The curve (trajectory) in pure projectile motion (if only gravity is acting) is always a **6*** _____ [$y = x^2$]!
- **Question: Which hits the ground first, a bullet fired or a bullet dropped simultaneous to the firing? 7*** _____.



- **Big Bertha**

In WWI this gun was found by following the

8* _____ of her projectile motion.

- **Calculating Projectile Motion**

- Horizontal distance comes from $v = d/t$, so [_____].
- Vertical distance is, as you know [_____], or approximately $d = 5t^2$.
- **Question: How far below its straight line trajectory will Big Bertha's cannonball be after 2 sec? 9*** _____ m
- **Question: If Big Bertha's horizontal component of velocity is 30 m/sec, how far across the ocean will the cannonball be after 5 sec? 10*** _____ m
- **Question: How fast a projectile launched horizontally from a 5m high platform if it went 40 m before hitting the ground? 11*** _____ m/sec

- **Maximum Range of a Projectile is 12*** _____ °

Because Earth's curvature is 5m drop for 8km distance and since it takes 1 sec for an object to fall 5m, an object traveling 8km/sec can stay in orbit. This is about 18,000 mph and would even burn up iron.

- **Kepler's Laws of Planetary Motion**

- I. Planets move in **13*** _____, with the Sun at one focus.
- II. The line from the Sun to any planet sweeps out equal areas in equal times.
- III. [_____], where T is time period for a revolution and R is planet's average distance to sun.

- **Why is the escape velocity also the *maximum falling speed*?**

14* _____

(Use complete sentences, please.)