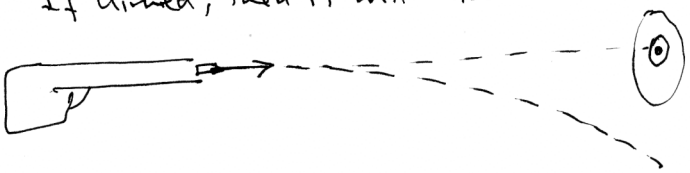
Ch. 3 / Conceptual Questions

(1) If aimed, then it will miss the target, as shown



As the bullet leaves the muzzle, it starts falling. Its path is that of a projectile.

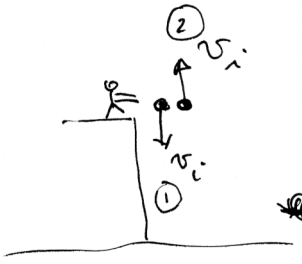
---

(3) Free Fall = falling under the action of gravity with no air resistance.

Thus the falling object cannot be in equilibrium.

---

(6)



Let's concentrate on (2). It goes up and then return toward the ground. When it reaches the point it was ~~[illegible]~~ thrown upward, it is going at the same speed v_i. Thus both (1) and (2) hit the ground with the same speed.

(12)

a) The car does not have a constant velocity. The direction of motion is changing, thus the velocity is changing.

b) both the direction and magnitude of velocity remain constant. Thus velocity is constant.

c) The moon's velocity is changing its direction and its value. Thus the moon's velocity is not constant.