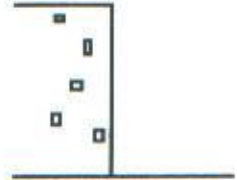


3.) A ball is thrown vertically upward from the top of a building at 12.0 m/s and hits the ground in 9.0 secs.

- a.) What is the velocity of the ball just before it hits the ground?
- b.) What is Δy ?



- c.) What is the height of the building? _____
- 4.) OVERHEAD: Explain your answer to the "Average Falling Speed" overhead.
- 5.) OVERHEAD: Explain your answer to the "Acceleration at the Top" overhead.

6.) Crazy Joe Clayton is out to impress his cousin Wanda Cole McCoy. He tilts back his head and spits his chewing tobacco wad straight up in the air with a velocity of 15 ft/s .

- a.) What distance upward will it have moved when its speed reaches 0 ft/s?
- b.) How much time will have passed when its speed equals 0 ft/s?
- c.) How much time will be required for the wad to fall the same distance it went up?
- d.) What will be the velocity of the wad just before it lands back in Crazy Joe's mouth?

7.) A cat is sleeping up in a tree 6.0 meters above the ground. If you were standing **directly below the cat**, at what velocity would you need to release a rock to gently nudge the cat awake without hurting the cat? Assume the rock is released 2.0 meters above the ground.

8.) A steel ball is dropped from a height of 30.0 meters above the earth's surface. An identical ball is dropped 30.0 m above the surface of the moon (Due to the moon's much smaller mass, its gravity is one sixth the gravity of the earth)

a.) Determine the velocity of each ball just before it hits the surface.

EARTH:

MOON:



b.) Determine the time required for each ball to hit the surface.

EARTH:

MOON:



1a) -4.91m 1b) -44.1m 1c) 39.2m 1d) -19.6m/s 1e) 29.4m/s 2a) -193m 2c) YD 2d) -45.7 m/s 2e) -63.1m/s 3a) -76.3m/s
3b) -289.3m 3c) YD 6a) 3.5 ft 6b) 0.47 s 6c&d) YD 7) 8.86m/s 8a) E: -24m/s, M: -9.92m/s 8b) E: 2.5s, M: 6.04s