A-Day: Due Wed., 10/1 (Assigned: 9/29)
B-Day: Due Thurs., 10/2 (Assigned: 9/30)

2008 PreAP Projectiles 1

1. Two balls are launched horizontally. One is thrown twice as fast as the other.

   A. If they are launched from the same position above the ground, which one hits the ground first?

   B. If ball A is launched from a higher position, which one hits the ground first?

2. Projectile Motion questions:
   A) At the top of its path, what is a projectile's velocity in the y-direction?
   B) At the top of its path, what is a projectile's acceleration in the x-direction?
   C) If a projectile is launched from the ground and lands on the ground, how does its initial and final velocities compare?
   D) A projectile is launched from the top of a 12 m building, what is Δy?
   E) You want to know how high a projectile goes. V_{yf} (final y –vel) = _____?
   F) How do you find initial Vx for a projectile?
   G) If you know the total time from ground to ground is 18 seconds, how long did it take to get to its highest point?
   H) What is the y-direction acceleration of any projectile?
   I) How do you find initial Vy for a projectile?
   J) If a projectile is launched from the ground and lands on the ground, what is Δy?
   K) If a projectile is launched from a 4 m cliff, what is Δy?
   L) If a projectile has an initial Vx of 25 m/s, what is its final Vx?

3. A cannonball is fired at 40 m/s at 50^o to the horizon.
   A) a_y = _____; a_x = _____.
   B) Draw the vector of the initial velocity and resolve it into its x and y components. (Find Vx and Vy.)

   Remember that once you've broken the vector up into x and y, x and y are independent of each other!
   C) The y-direction is now just freefall. So, how long does it takes for the ball to come back to the earth? (Find t.)

   D) Find how far the cannonball will travel from where it was shot (x-displacement).

4. A cannon fires a projectile at 30^o and 68 m/s. Find how far away the projectile lands (known as its _____).

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