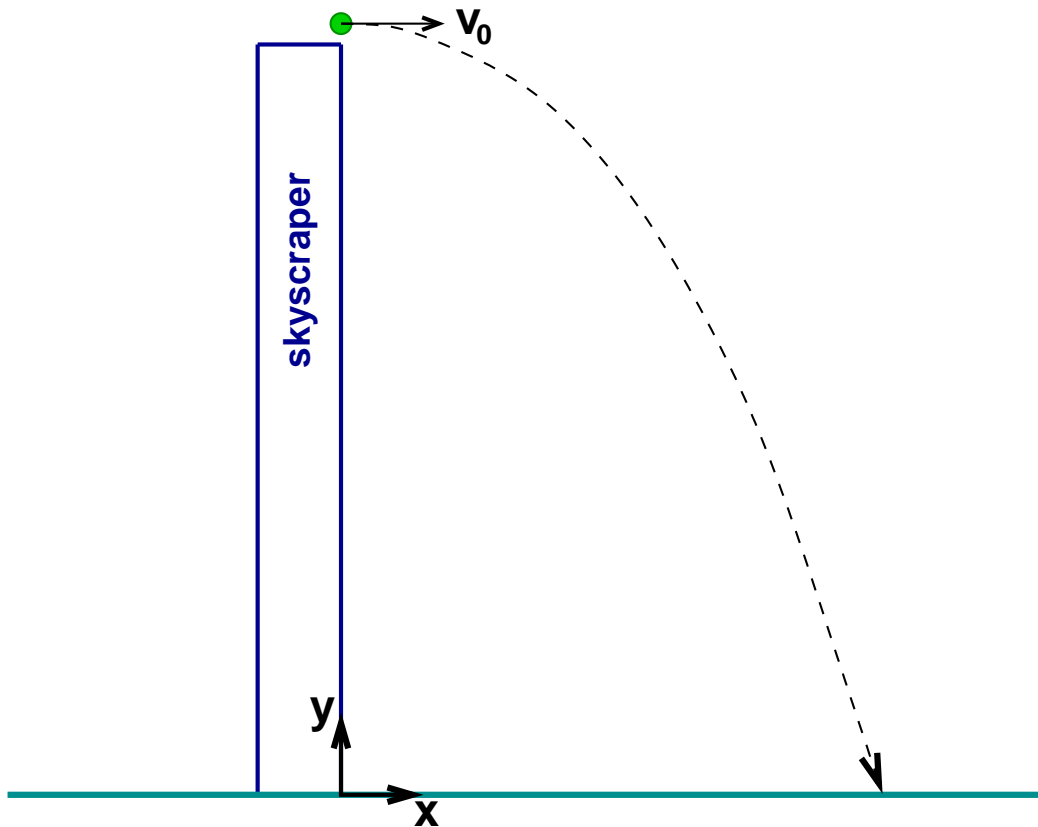


Physics 122: Practice Problem of the Day**Problem #01: Kinematics Review with Cartesian Unit Vectors**

Tuesday, 13 Jan 2008



A ball is thrown horizontally from a skyscraper as shown above. The initial speed is given as $v_0 = 8.0$ meters per second. The ball is thrown from a height of 140.0 meters from the ground. Assume we can neglect air friction. After some time the ball hits the ground.

Suppose \vec{r} , \vec{v} , and \vec{a} correspond to the position, velocity, and acceleration of the ball at the instant just before hits the ground. For each of these, write down a *vector expression* showing the calculated value in terms of the given parameters and known physical constants. Use the coordinate system given with the origin located at the base of the skyscraper as shown.