Projectiles #3

1. Evel Knievel is attempting to jump his motorcycle from the roof of one building to the roof of another building that has the same height. To do so he rides at 25 m/s and uses a ramp with a 33° angle.

   (a) Draw a diagram of the situation and write down knowns and unknowns.

   (b) What are the x- and y- components of Evel's initial velocity?

   (c) How much time will it take Evel to land?

   (d) How far forward will he travel in this time?

   (e) The buildings are 50 meters apart. Did he make it?

2. A ball is thrown *horizontally* from the top of a 60-m building and lands 100 m from the base of the building.
   (a) Draw a diagram of the situation and write down knowns and unknowns.

   (b) How long is the ball in the air?

   (c) What must have been the initial horizontal component of the velocity?

   (d) Calculate the final x- and y- velocities of the ball just before it hist the ground.

   (e) What is the final resultant velocity and angle of the ball just before it hist the ground?

Answers: (b) 3.50 s; (c) 28.6 m/s; (d) 34.3 m/s; (e) 44.7 m/s @ $-50.2°$