Projectiles #3

1. A Hollywood stunt woman drives a car off a cliff that is 94 m high. With what velocity must she drive the car so that it lands on a barge 250 m away from the bottom of the cliff?

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

   (b) How much time will it take for the car to fall down the cliff?

   (c) What velocity did the woman need to have going off the cliff?

   (d) What is the woman's y-velocity just before she hits the ground?

   (e) Draw a triangle to find the woman's **resultant final velocity** and the **angle**.

2. 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 30° angle.

   (a) Draw a diagram of the situations 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?