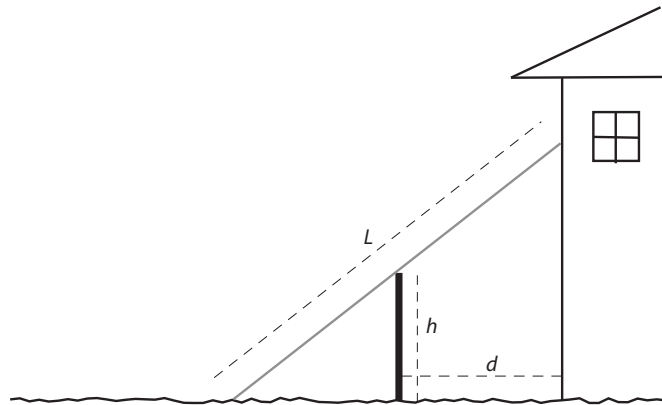


PHYS 1410 (Winter 2013) - Tutorial (01.08.13)

- A calculator is not needed.

**1.** (*10 points*) You are a burglar. You want to break into a certain house, but it is unfortunately surrounded by a fence that you can not climb directly (see figure). So you are going to need a ladder. But ladders are expensive! So you need to figure out what is the shortest ladder (of length  $L$ ) you would need to get over the fence to the house. Your answer should depend upon  $d$  and  $h$ . **Make sure to clearly explain your thinking/methodology!**



**Figure 1:** Schematic showing nature of problem. Note that fence is of height  $h$  and is at a distance  $d$  from the house. The ladder only need touch the house (i.e., the height of the window is irrelevant).