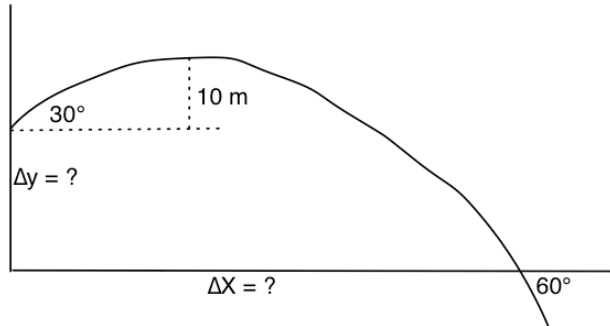
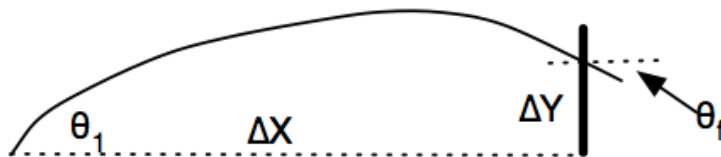


1. You throw a ball at 37° above the horizontal and you want to hit a target on the ground, 20 ft from where you are standing. How fast should you throw the ball? What will be its final velocity? [Hint: How tall are you?]
2. In the preceding problem what would be the initial and final velocities if the target was still 20 ft away, but 10 ft above the ground? [Need to use the hint from #1]
3. A ball is thrown at an angle above the horizontal and hits a wall 20 m away, 25 m above the point it was thrown. If the ball hits the wall moving in a direction 45° below the horizontal what was its initial velocity? What was the speed of the ball when it hit the wall? [$t=3.03s$, find the rest yourself]
4. Find Δx and Δy using the given data [$V_0=28.0$ m/s, find the rest yourself]



5. A football is kicked off with an initial speed of 64 ft/sec at an angle of 45° . At that instant, a receiver 60 yards away starts to run to catch the ball at the same height it was kicked. What minimum average speed must he have to succeed? Assume the ball was caught at the same level it was kicked, i.e. $\Delta Y=0$). [18.4 ft/s]
6. A ball is thrown at an angle above the horizontal and hits a wall 40 ft away, 25 ft above the point it was thrown. If the ball hits the wall moving in a direction 40° below the horizontal, what was:
 - a. the total time of the trajectory [4.46 s]
 - b. its initial velocity? [28.9 m/s, 71.9°]
 - c. the speed of the ball when it hit the wall? [18.05 m/s]



7. A projectile is shot from a slingshot. The projectile just clears a 10m fence 130m from the point of being flung and lands 10m behind the fence. What is its initial velocity and how high will the ball go? [$V_{0x}=25.24$ m/s, find the rest yourself]