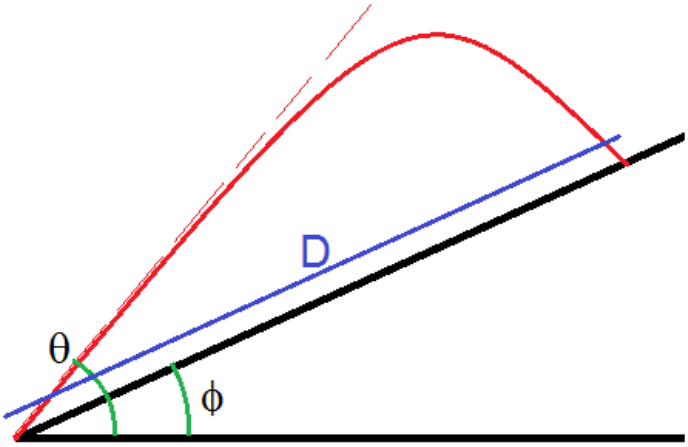
3-3)

The range equation is great if the launching and landing points are at the same altitude. What if that is not the case?



Consider a hill inclined at angle $\varphi = 30^o$ above the horizontal. We want to launch a projectile from the base of the hill so that it lands a distance D = 60 m up the hillside. If the initial speed of the projectile is 32 m/s, at what angles from the horizontal could it be launched? Repeat for the case where the hill is a downward slope of 30^o.

You may find this useful: $1 + \tan^2\theta_o = 1/\cos^2\theta_o$.