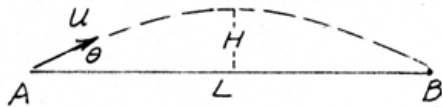


2/77 From Sample Prob. 2/6,  $H = \frac{u^2 \sin^2 \theta}{2g}$  ---- (a)

$L = 25 = \frac{u^2 \sin 2\theta}{g}$  ---- (b)



so  $\frac{H}{L} = \frac{\sin^2 \theta}{2(2 \sin \theta \cos \theta)}$   
 $= \frac{1}{4} \tan \theta$

Thus  $\theta = \tan^{-1}(4H/L)$

From (a)  $\sin \theta = \sqrt{2gH}/u$

" (b)  $Lg/u^2 = 2 \sin \theta \cos \theta = 2 \sin \theta \sqrt{1 - \sin^2 \theta}$   
 $= 2 \frac{\sqrt{2gH}}{u} \sqrt{1 - \frac{2gH}{u^2}}$

Simplify, solve for u & get  $u = \sqrt{2gH} \sqrt{1 + \left(\frac{L}{4H}\right)^2}$