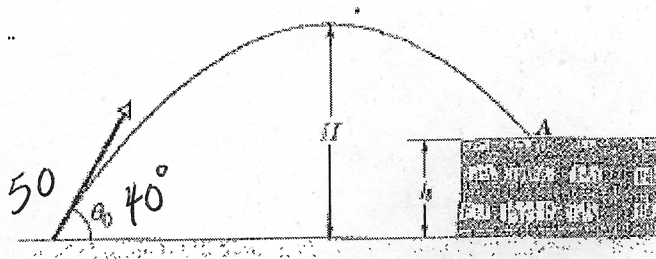


Free Response (9 points)

17. A stone is projected at a cliff with an initial speed of  $50.0$  m/s directed at an angle of  $40$  degrees above the horizontal. The stone strikes the cliff at point  $A$ ,  $5.50$  seconds after launching.



(1) What are the horizontal and vertical components of the stone's initial velocity?

(2) What is the height,  $h$ , of the cliff?

(3) What is the **speed** of the stone just before impact at  $A$ ?

(4) What is the maximum height,  $H$  the stone reached above the ground?