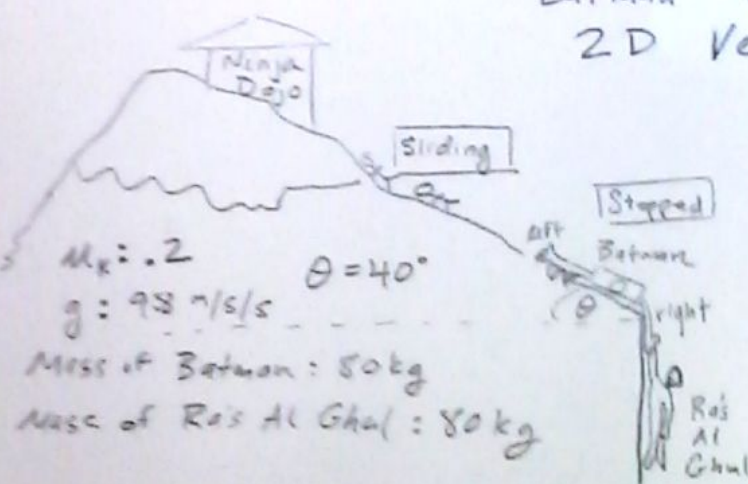


Batman Begins Activity

2D Vector Forces

Names:



1) Draw a force diagram for batman & Ra's while sliding:

a.) Batman



b.) Ra's Al Ghul



2.) Write an equation for the net Force "y" on batman alone, while he is sliding.

3.) Write an equation for the net Force "x" on batman while sliding.
 (Remember $F_{\text{friction}} = \mu_k F_{\text{Normal}}$)

4.) Calculate batman's acceleration while sliding.

5.) What is batman's velocity just before he "hooks" the ground?
 (Assume $v_i = 20 \text{ m/s}$; he slides for 15 seconds) What is the Δx ?

6.) If Ra's has an initial velocity of 5 m/s , how much time will pass before batman reaches him?

7.) How much distance is required for batman to reach Ra's?

8.) Does batman's "slide" technique allow him to accelerate faster than Ra's? Why?