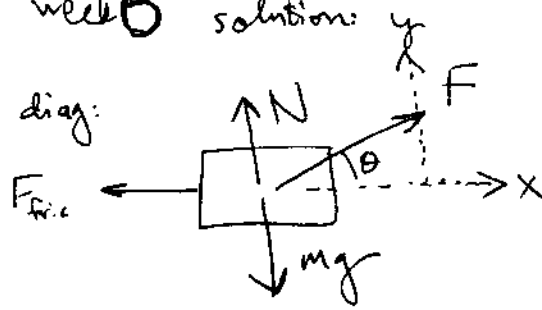


Written HW week 6 solution:

Free-body diag:



x component of  $F$   
 $= F \cos \theta$

(A) Know  $N = Mg$  because no vertical acceleration.

Therefore  $|F_{\text{fric}}| = \mu_k N = \mu_k mg$

$$F_{\text{net},x} = F \cos \theta - F_{\text{fric}} = F \cos \theta - \mu_k mg$$

$$\text{so } a = \frac{F \cos \theta}{m} - \mu_k g$$

$$(B) v = v_0 + a \Delta t$$

$$v = \left( \frac{F \cos \theta}{m} - \mu_k g \right) \Delta t$$