brief L&D: 'Apparent' Weight (*turns out it's equal to the Normal force*)

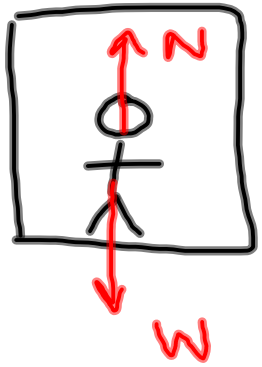
then, finally, a field trip to the elevator!

use remainder of class time for MP

Nov 18-7:53 AM

ELEVATOR

STATIONARY



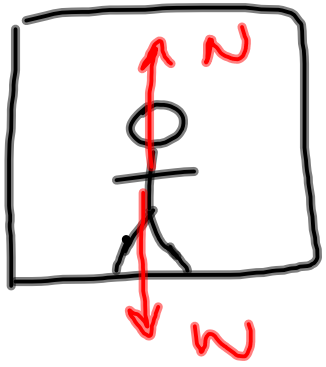
$\Sigma f_y = ma_y$

$N - W = 0$

$N = W$

YOU FEEL YOUR ACTUAL WEIGHT

ACCEL. UP



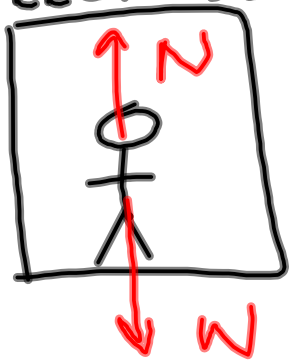
$\Sigma f_y = ma_y$

$N - W = ma_y$

$N = W + ma_y$

YOU FEEL HEAVIER THAN NORMAL

ACCEL. DOWN



$\Sigma F_y = ma_y$

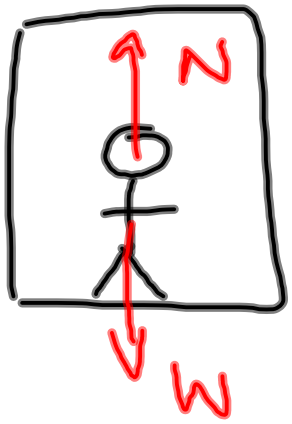
$N - W = -ma_y$

$N = W - ma_y$

YOU FEEL LIGHTER THAN NORMAL

Nov 18-10:15 AM

CONSTANT SPEED



$\Sigma f_y = ma_y$

$N - W = 0^*$

$N = W$

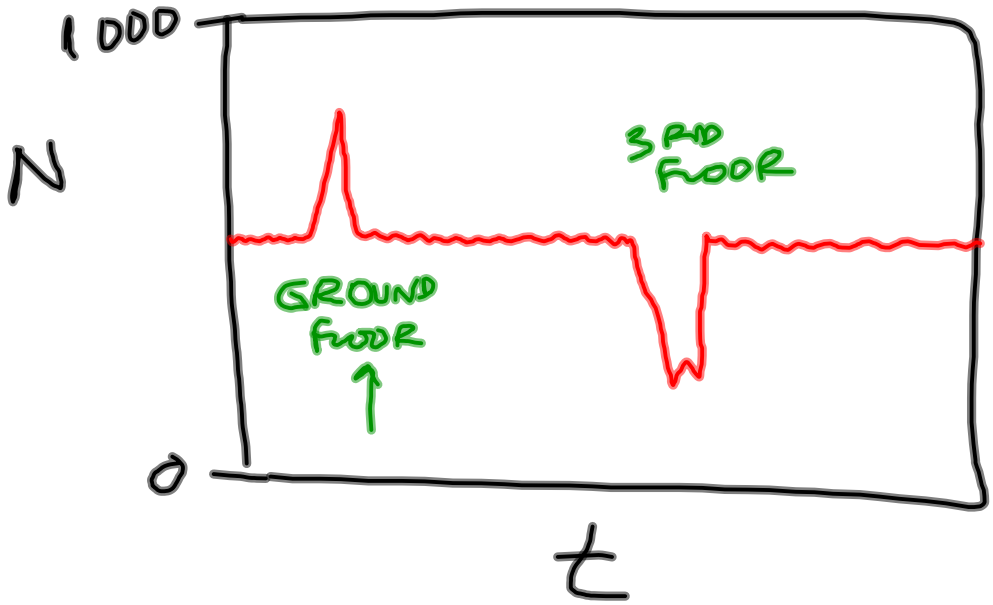
YOU FEEL YOUR TRUE WEIGHT

* CONSTANT VELOCITY

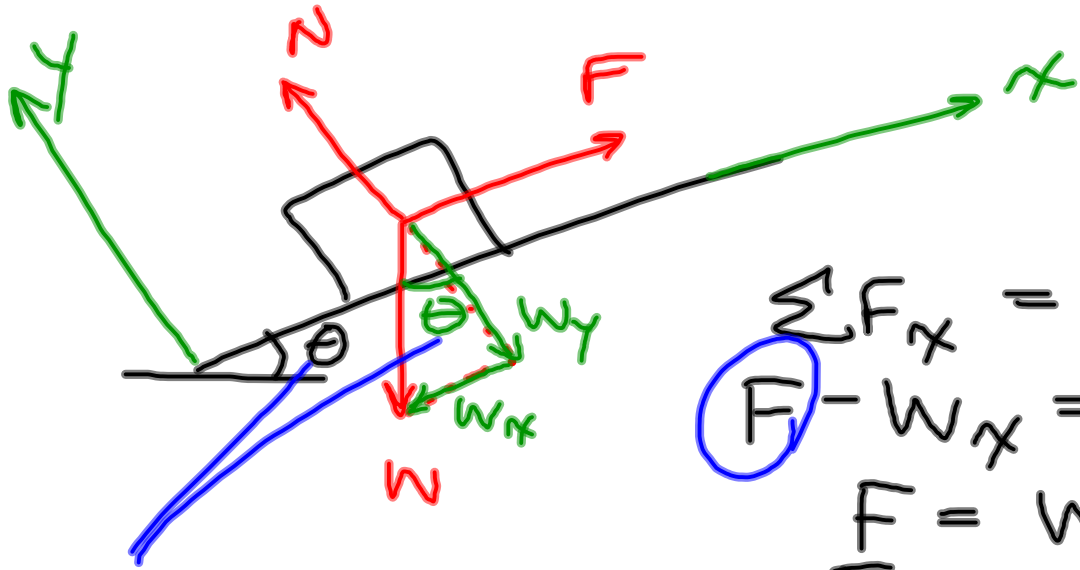
⇓

$a = 0$

Nov 18-10:24 AM



Nov 18-10:44 AM



5.19

THESE ARE THE SAME, ALWAYS

$$\Sigma F_x = ma_x$$

$$F - W_x = 0$$

$$F = W_x$$

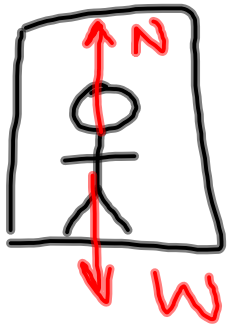
$$F = W \sin\theta$$

$$F = mg \sin\theta$$

Nov 18-10:48 AM

ELEVATOR

STATIONARY



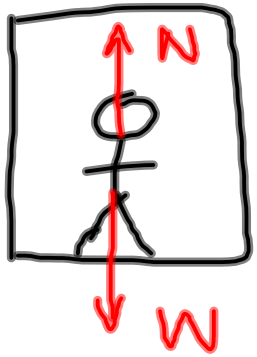
$\Sigma F_y = ma_y$

$N - W = 0$

$N = W$

YOU FEEL YOUR TRUE WEIGHT

ACCEL. UPWARD



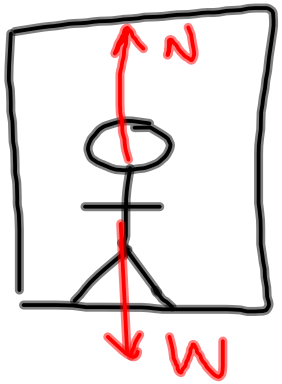
$\Sigma F_y = ma_y$

$N - W = ma_y$

$N = W + ma_y$

YOU FEEL HEAVIER

ACCEL. DOWN



$\Sigma F_y = ma_y$

$N - W = -ma_y$

$N = W - ma_y$

YOU FEEL LIGHTER

Nov 18-12:35 PM

$$\Sigma F_y = ma_y$$

$$N - W = 0^*$$

$$N = W$$

* CONSTANT VELOCITY

$\Downarrow$

$a = 0$

$$W^* = mg$$

* TRUE WEIGHT

Nov 18-12:46 PM