Today:
Newton's 3rd Law
Normal force
Tension

Irish Phrasebook

Playing a blinder – doing something exceptionally well, usually used in sports

"Joe played a blinder last night. He definitely deserved man of the match."

Intuitively, the speed of the car increases by 10m/s

Does this agree with Newton's 3rd Law?

What about our initial common sense reasoning?

What is the third law pair here?

Announcements

- Ch 2 on-paper homework due Monday 28th in class
  - Have **Parts A and B** in class on Friday
  - Remember you can work in pairs and hand in one assignment for the two of you
- The lecture slides and the handwritten notes are uploaded to LON-CAPA after class
- Video on vectors on YouTube (link on LON-CAPA)
- Help room hours today only from **8-10pm**

How would you feel about moving Chapter 3.1-3.4 homework to be due on Monday?

A. Yes please!
B. Meh, I don't really care.
C. No way! That will really mess with my schedule!

Homework for Chapter 3.1-3.4 will be due on Monday 9/28

When would suit you best to do a review session for Exam 1?

A. Around 7pm Wed. Oct. 1st
B. Around 7pm Thurs. Oct. 2nd
C. The morning of Sat. Oct. 3rd
D. Any of these days are fine with me
E. I don't plan on going

Ch3 Reading Questions

I was a little confused on some of the formulas and really just want to know which ones are relevant to me in this class

I would like to further learn how to work with free body diagrams and what forces act on an object.

Are we going to be working with the buoyant force in class?

Can we go over finding the forces on objects involved in a pulley system (like the forces around a corner thing)?

Is the amount of normal force always just the reciprocation of the force acting on an object?

Compare forces 1 and 2

A. Force 1 is bigger because the upward force must be bigger to keep the box from falling through the table.

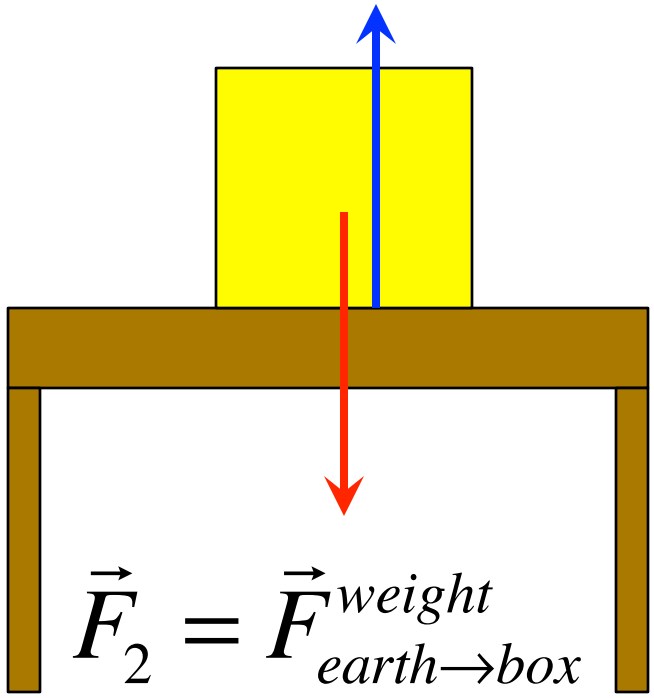
B. Force 2 is bigger because the weight is an active force that is always bigger than a passive force.

C. They are equal in magnitude because the normal force is a passive force that adjusts itself to the active force.

D. They are equal in magnitude because the box isn't moving and Newton's 2nd law says the forces must be equal.

E. There is not enough information to tell.

$$\vec{F}_1 = \vec{F}^{normal}_{table \to box}$$



$$\vec{F}_2 = \vec{F}^{weight}_{earth \to box}$$

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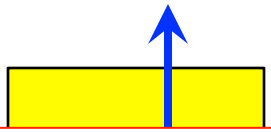


The normal force adjusts its magnitude to the gravity force pulling down, and we know this because N2 tells us if the box isn't moving the forces must be equal.

Compare forces 1 and 2

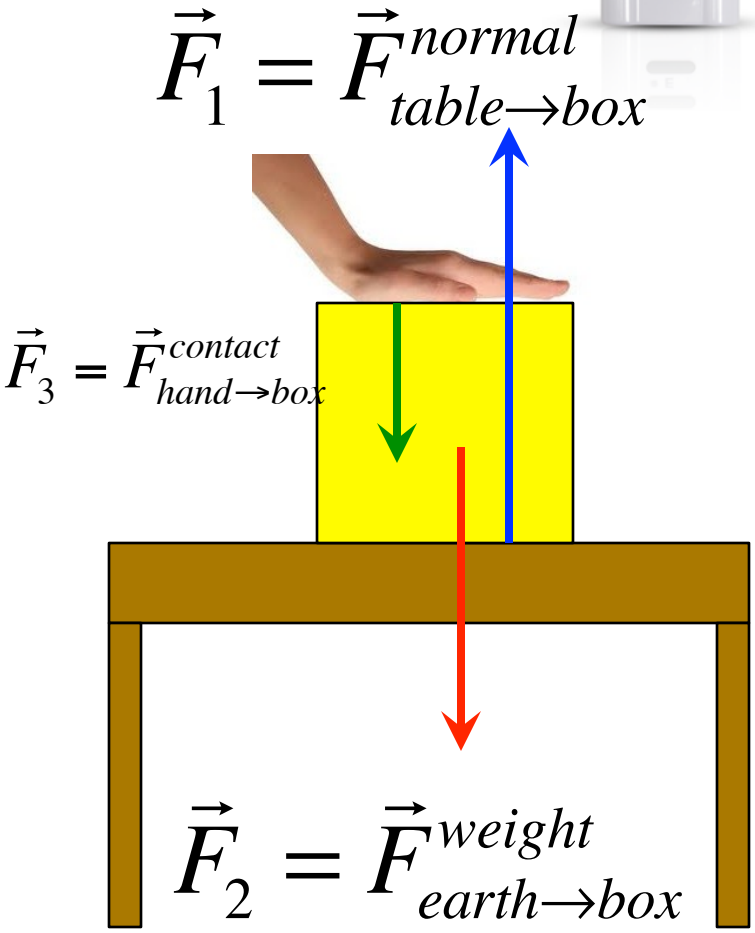
A. Force 1 is bigger because the upward force must be bigger to keep the box from falling through the table.

B. Force 2 is bigger because there is more force pushing down on the box

C. Force 1 is bigger because the normal force is a passive force that adjusts itself to the active force.

D. They are equal in magnitude because the box isn't moving and Newton's 2nd law says the forces must be equal.

E. There is not enough information to tell.



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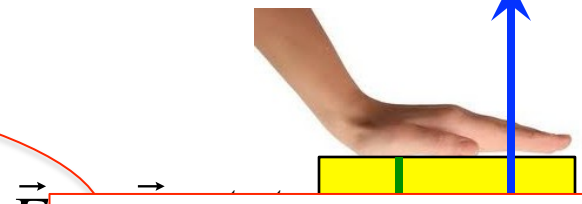


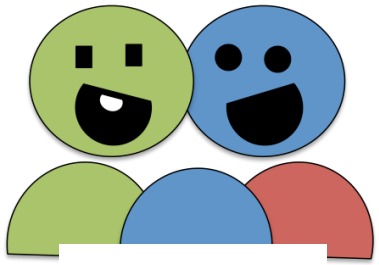
C is the best answer because it tells us the reason why force 1 is bigger.

$$\vec{F}_2 = \vec{F}^{weight}_{earth \to box}$$

Reading Q's:

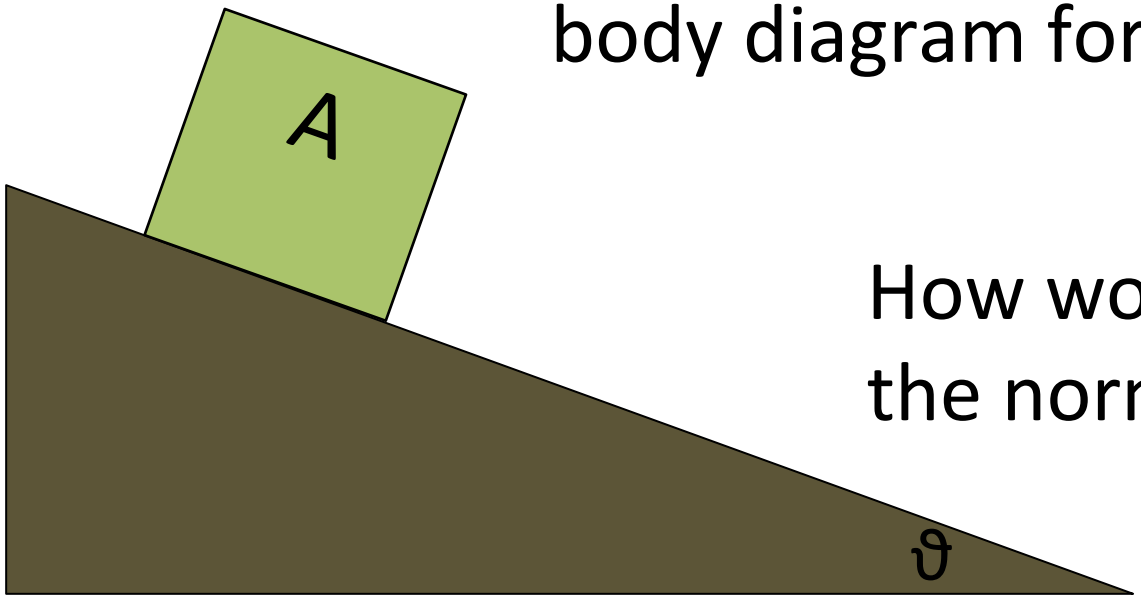
Finding frictional force, especially using the equations that include sin, cos, theta, etc.

I would like to know how to add vectors going in different directions. (Ex. gravity downhill and gravity pointing straight down from the plane)



Discuss It!

Box A is sitting still on the ramp. Draw a free body diagram for box A.



How would you quantify the normal force?