Phys 11A Lab - Eiteneer

Friction Analysis Redux
Project Visual

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What you see below is an electronic scale we were able to obtain. It only measures in pounds, but we can do conversions to get the results we want. It may not be the most accurate, but it is good enough for what we are trying to do. It was surprising to discover that it could measure the wooden block, which was rather light.

Below is just a side view image. We used tape to help strap the block onto the scale as tape adds virtually no mass to our objects. Tape also kept our object stable and from spinning while trying to measure it.

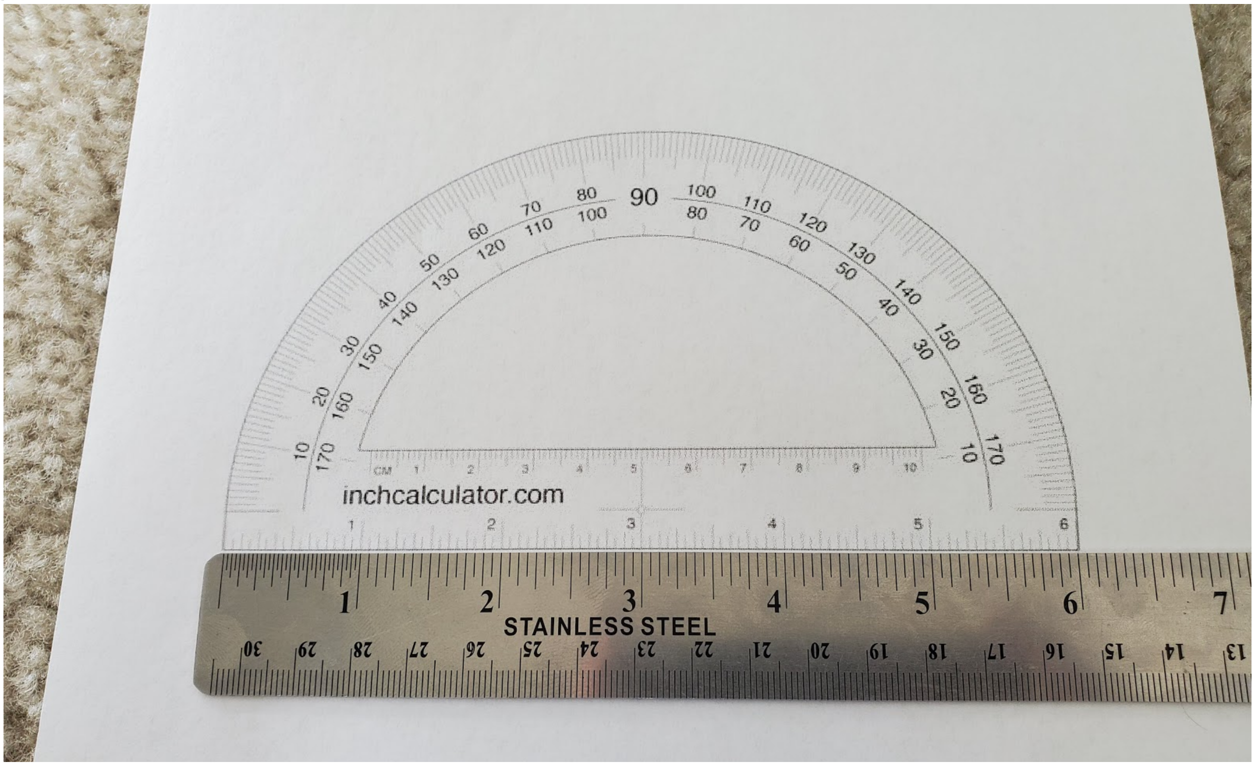
This time, we measured the coin box, which was significantly heavier.

Just another side view image.

Below is the measurement of the brick we used.

Again, just another side view image.

For our protractor, we were not able to find one in store and were afraid that one would not ship soon enough in time for our project, so we had to improvise. We were fairly certain that any protractor that we could print would be accurate enough for our purposes, but just in case, we printed one that we could determine to be in accurate scale.



For timing, we have stopwatch apps which should help us do the trick:

For our wooden incline, we found it to be roughly 4 foot 6 inches. This translates into 54 inches or about 137.16 centimeters. From 137 centimeters, we get 1.37 meters.

To make our measurements and calculations as simple and as accurate as possible, we will be using only 100cm of the total length of our incline. This is about 39.37 inches, which we did our best to mark as accurately as possible on our board.

For our tests, we set our objects behind the marked line to ensure that they traveled 100 centimeters.

The hardest part was measuring the width of the board from the side and drawing a line in the middle. This was done for our protractor.

Using our improvised protractor with the marked line, we were able to determine the angle of the incline. *This picture turned out to be a bit blurry, but it was perfectly fine to see in person.

Again, we had our electronic spring scale to help us measure forces on an inclined plane. We first adjusted the angle of the plane to where the object was still stationary before measuring the force. We also tried the same on an object where the angle made it slide.

Keeping our plane still was another tricky part. We had a paint gallon heavy enough to keep the plane still placed on one of the edges of the plane. We placed it towards one side because we wanted the object to still be able to slide all the way down, even if it meant having to slide it on the left side of our ramp. On the other side was a cooler which we would slide under the board to adjust our angles (*the concept was illustrated in our outline). If our angle was still too steep, we had books that we could place underneath instead.

And that basically sums up our project visual. Thanks!