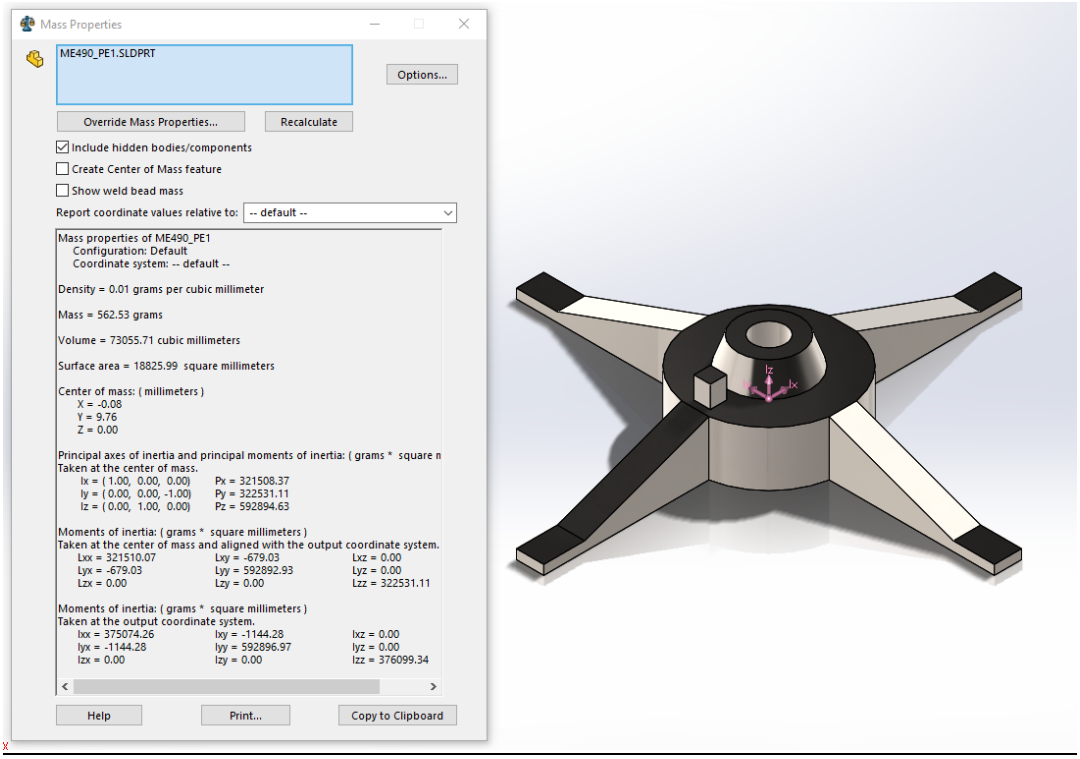
Practice Exam Segment 3- Assemblies

Question 1-Base Part

What is the mass of the part (grams)?

562.53 grams



Question 2- Create an Assembly

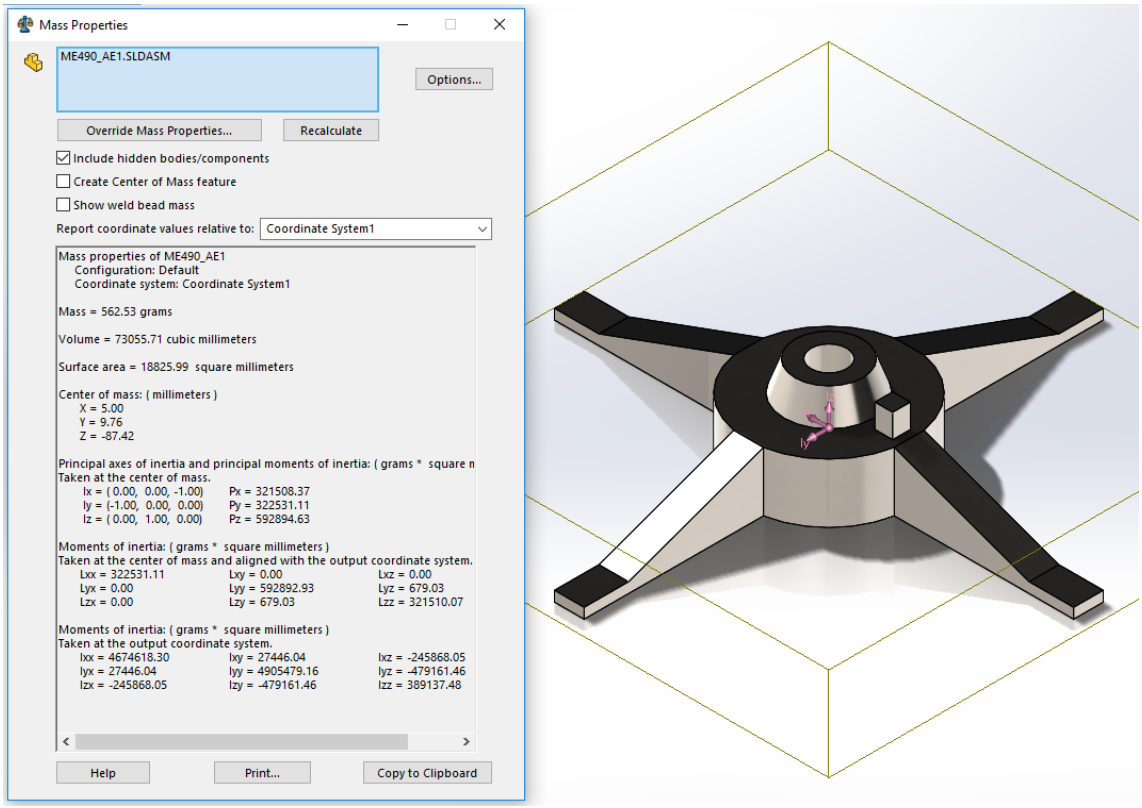
What is the center of the mass of the assembly with respect to the new coordinate system?

Center of mass: (millimeters)

X = 5.00

Y = 9.76

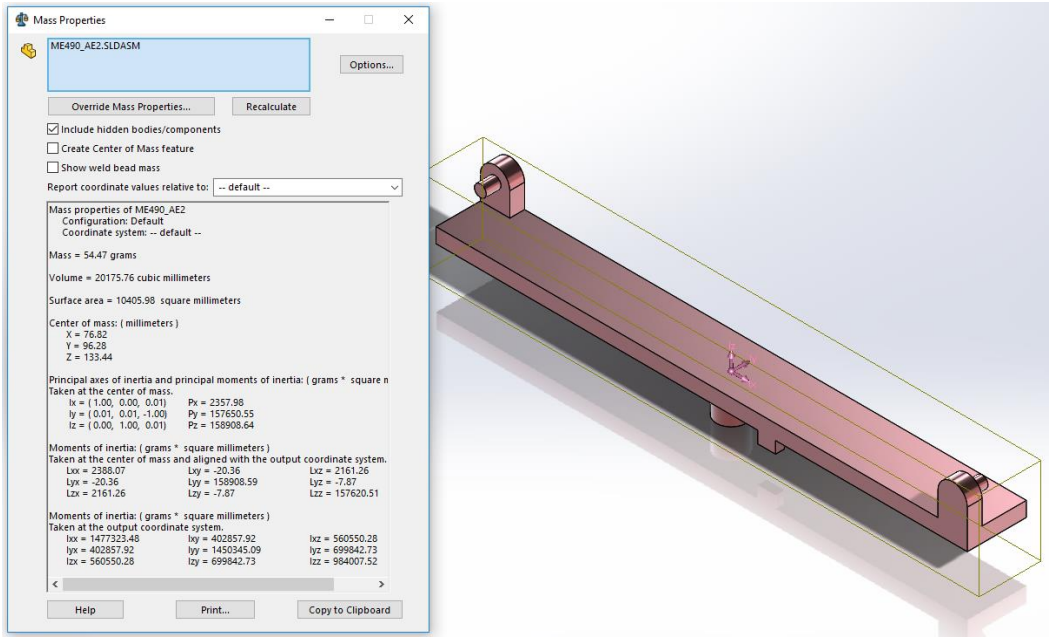
Z = -87.42



Question 3- Create a new assembly

What is the mass of Pivot.sldasm (grams)?

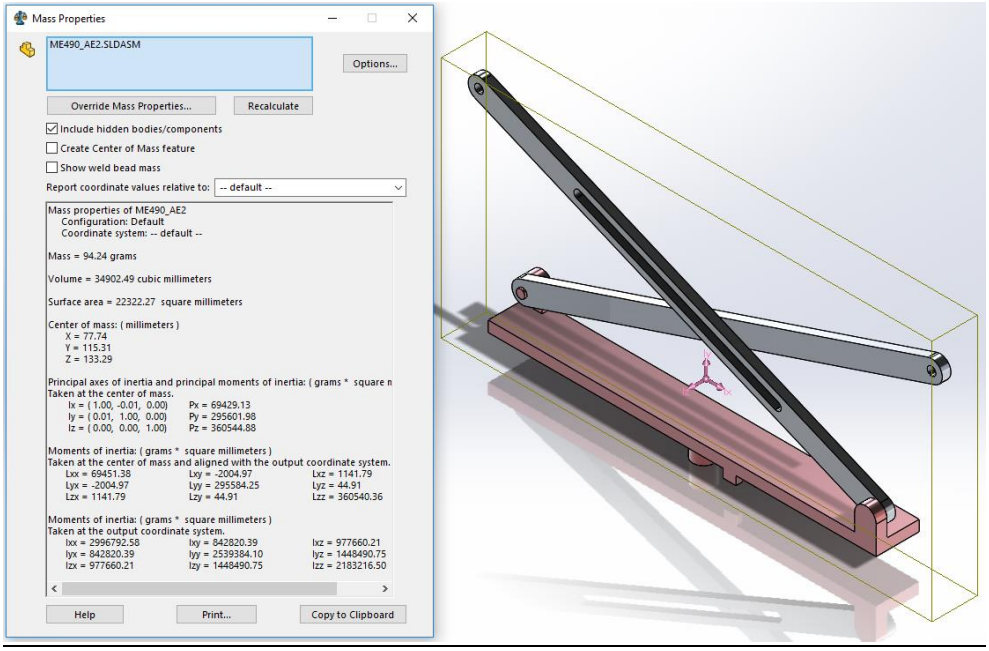
Mass = 54.47 grams



Question 4-Adding Parts

What is the mass of Pivot.sldasm (grams)?

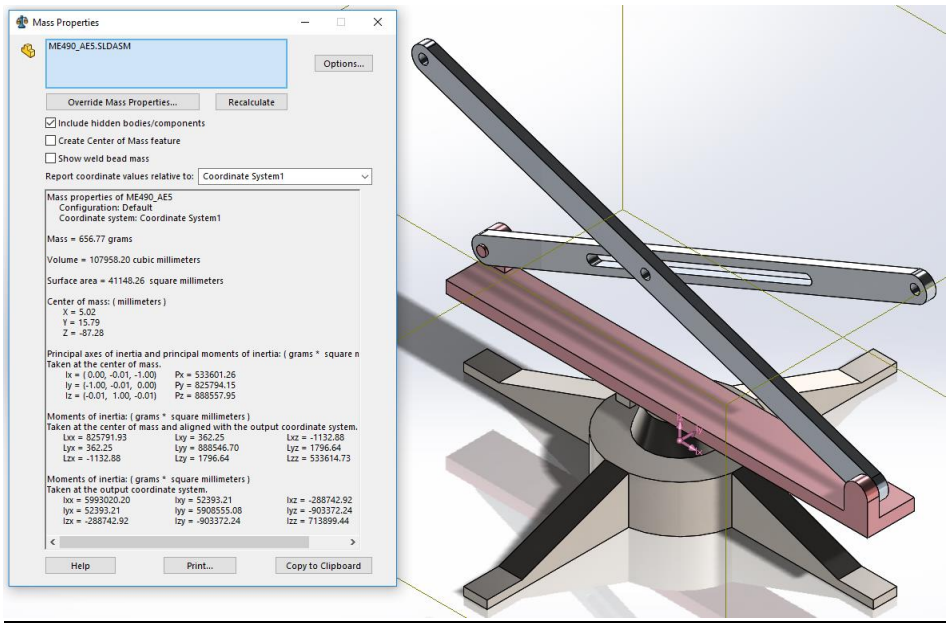
a. 94.24



Question 5- Adding a Subassembly

What is the center of mass of the assembly?

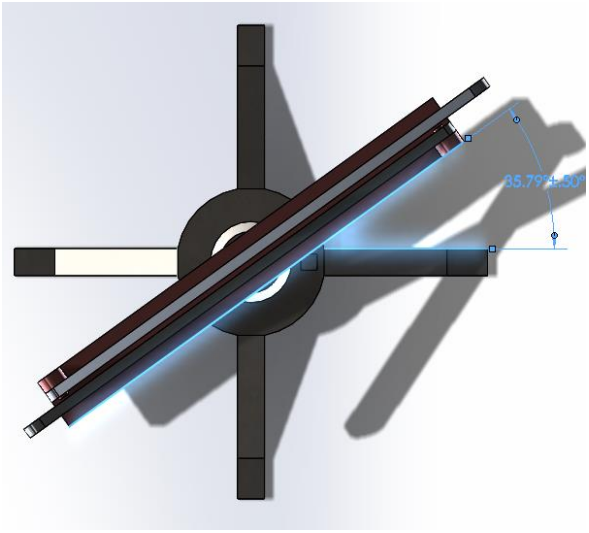
b. X=5.02, Y=15.81, Z= -87.28



Question 6-Collision Detection

What is the angle indicated by “X”?

35.79 degrees



Question 7- Additional Parts

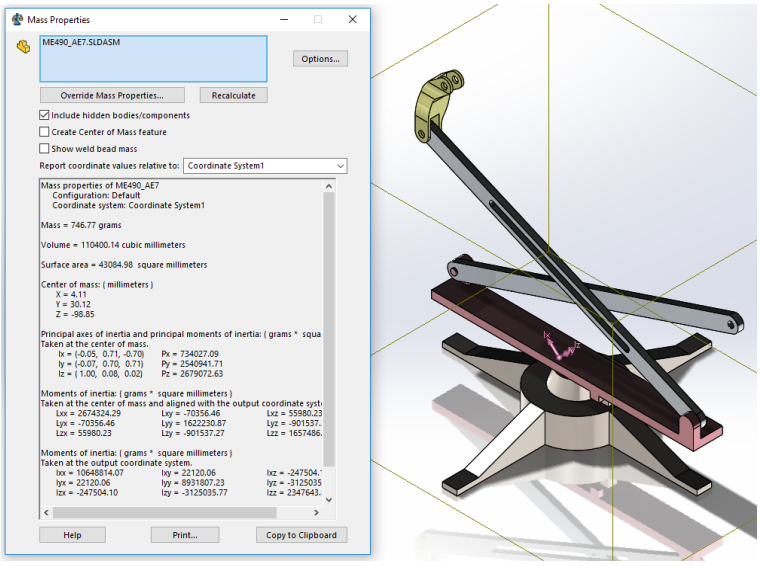
What is the Center of Mass of the Assembly?

Center of mass: (millimeters)

X = 4.11

Y = 30.12

Z = -98.85



Question 8- Add Damper

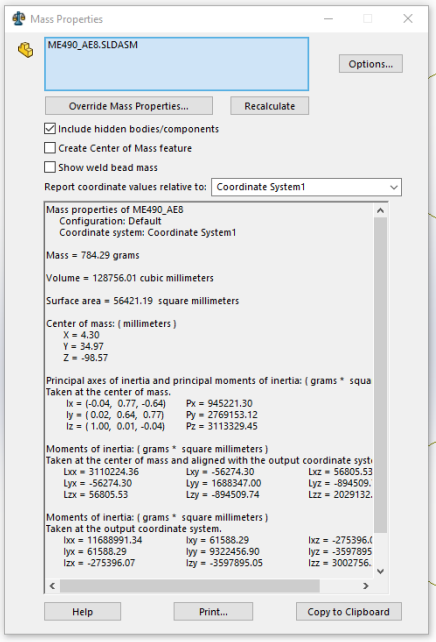
What is the center of mass of the Assembly (grams)?

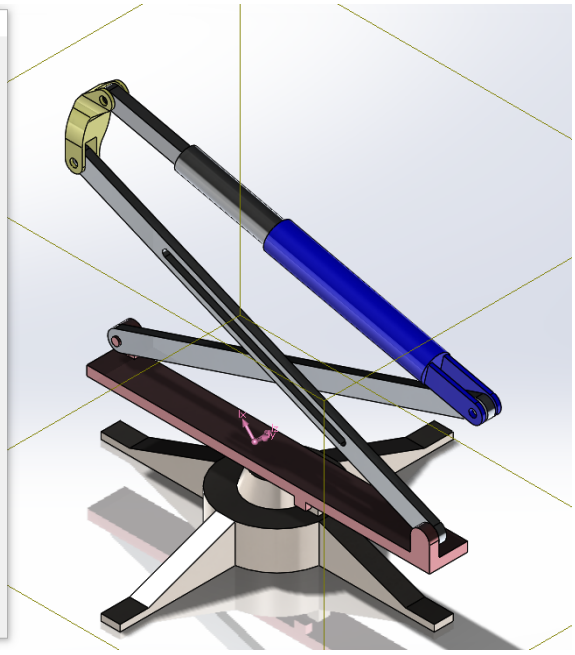
Center of mass: (millimeters)

X = 4.30

Y = 34.97

Z = -98.57

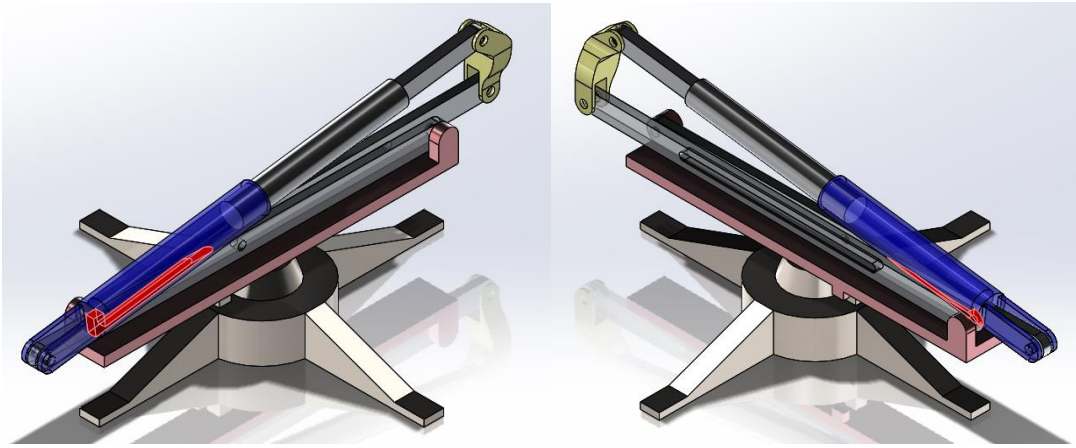


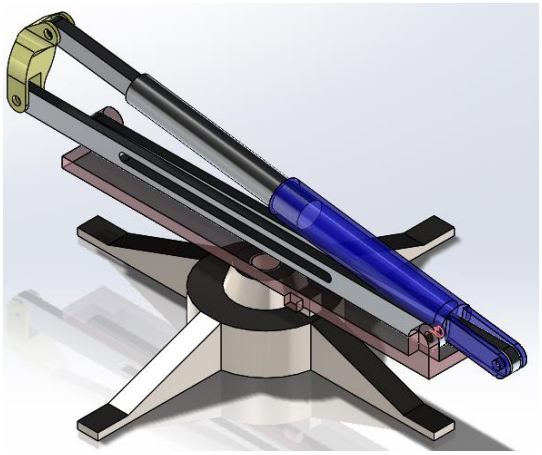


Question 9- Interference Detection

Which parts have interferences?

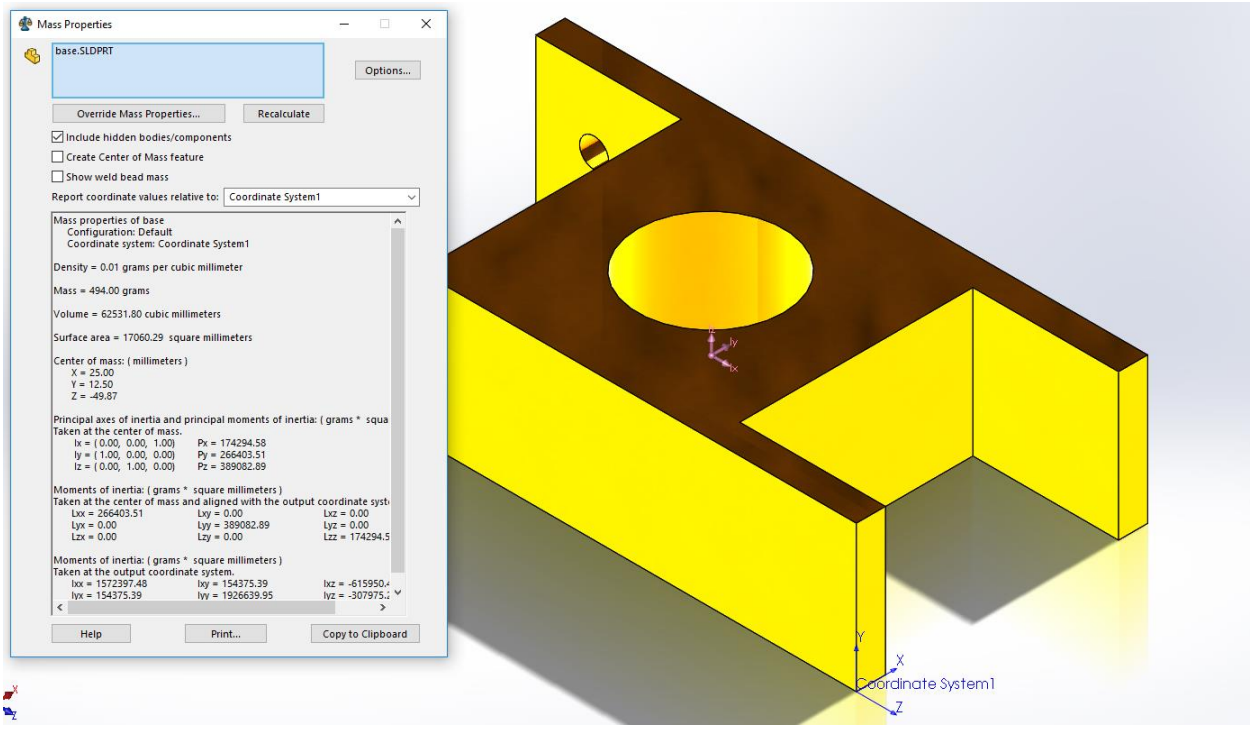
The Arm, the Arm slot, the housing and the pivot.



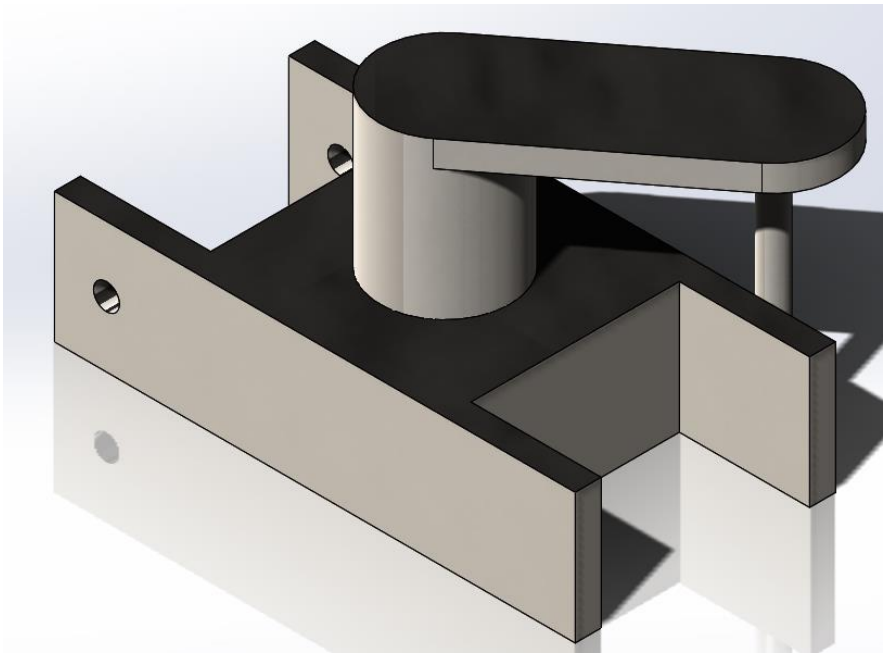


Class Exercise 1

1. Open the part “base” in a new assembly. Create the coordinate system shown below. What is the center of mass of the assembly with respect to coordinate system 1?
   Answer: **X: 25.00 mm Y: 12.50 mm Z: -49.87 mm**

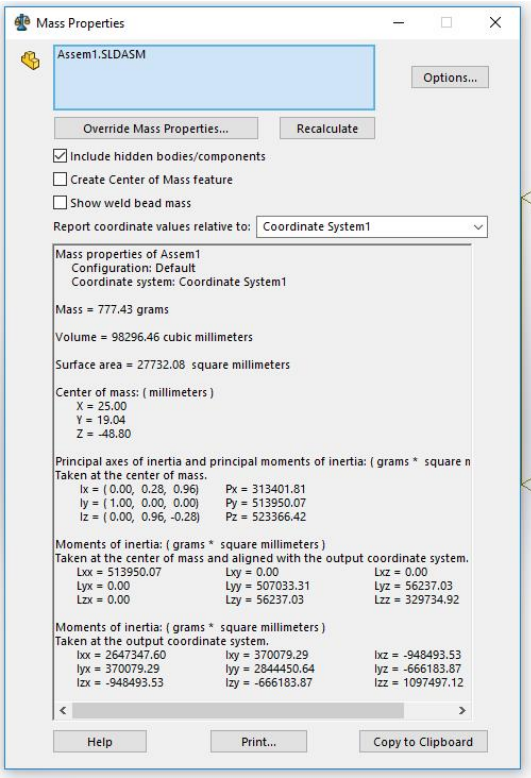


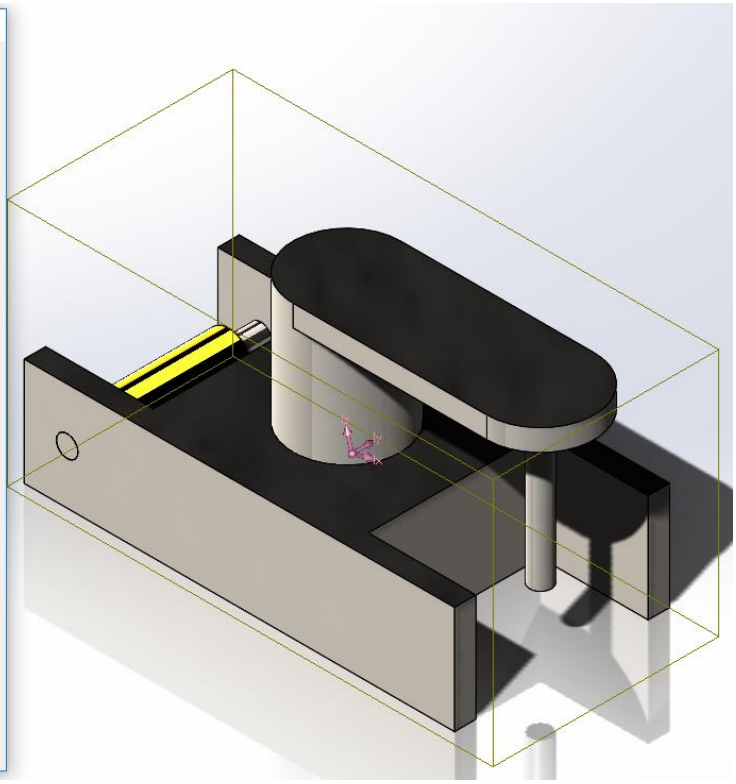
2. Create a new assembly from “base”. Insert the part called “arm” and create the mates shown below. Turn on collision detection. Move the arm to either side to observe detection



3&4. Insert the part “rod” into the assembly and create the mates shown below. . Insert “bushing” into the assembly. Apply the mates shown below. What is the center of mass of the assembly with respect to coordinate system 1?

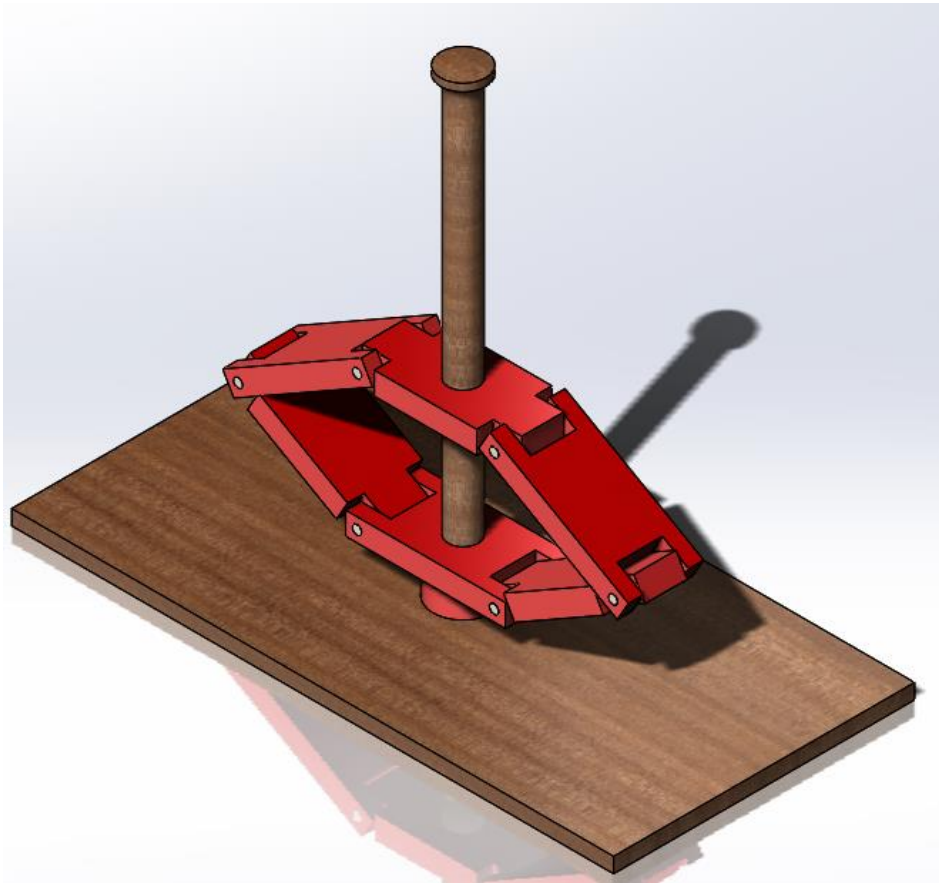
Answer: **X: 25.00 mm Y: 19.04 mm Z: -48.80 mm**





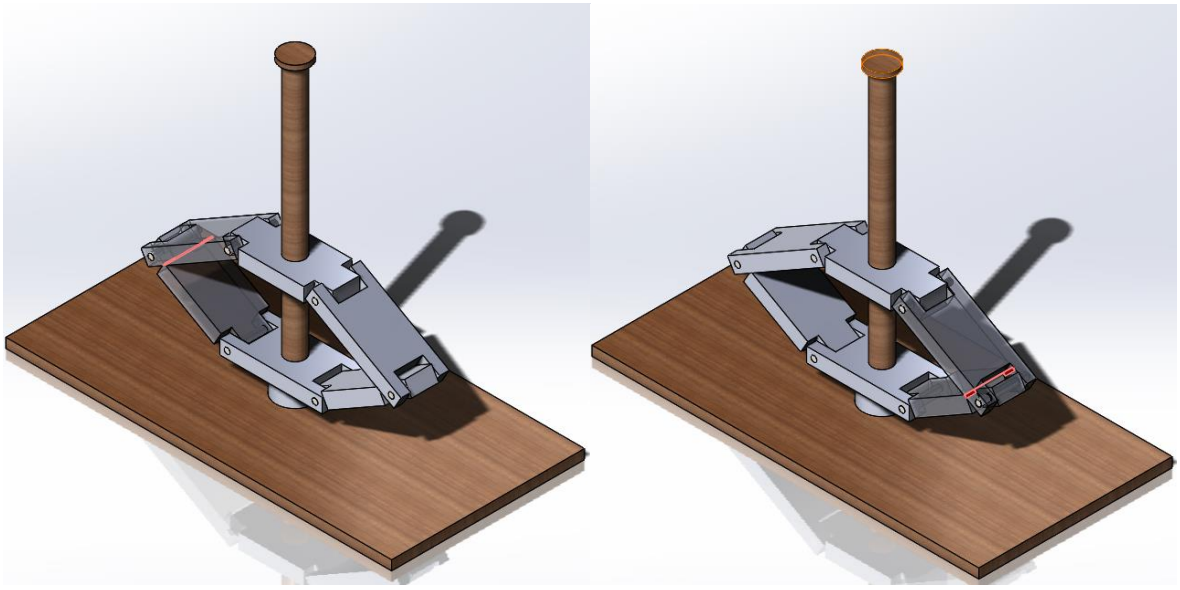
Class Exercise 2

1-4. Open the part “base” in a new assembly. Insert “link assembly” into the assembly. Make the link subassembly flexible. Set the mates shown below. Then turn on interference detection.



5. What parts are interfering?

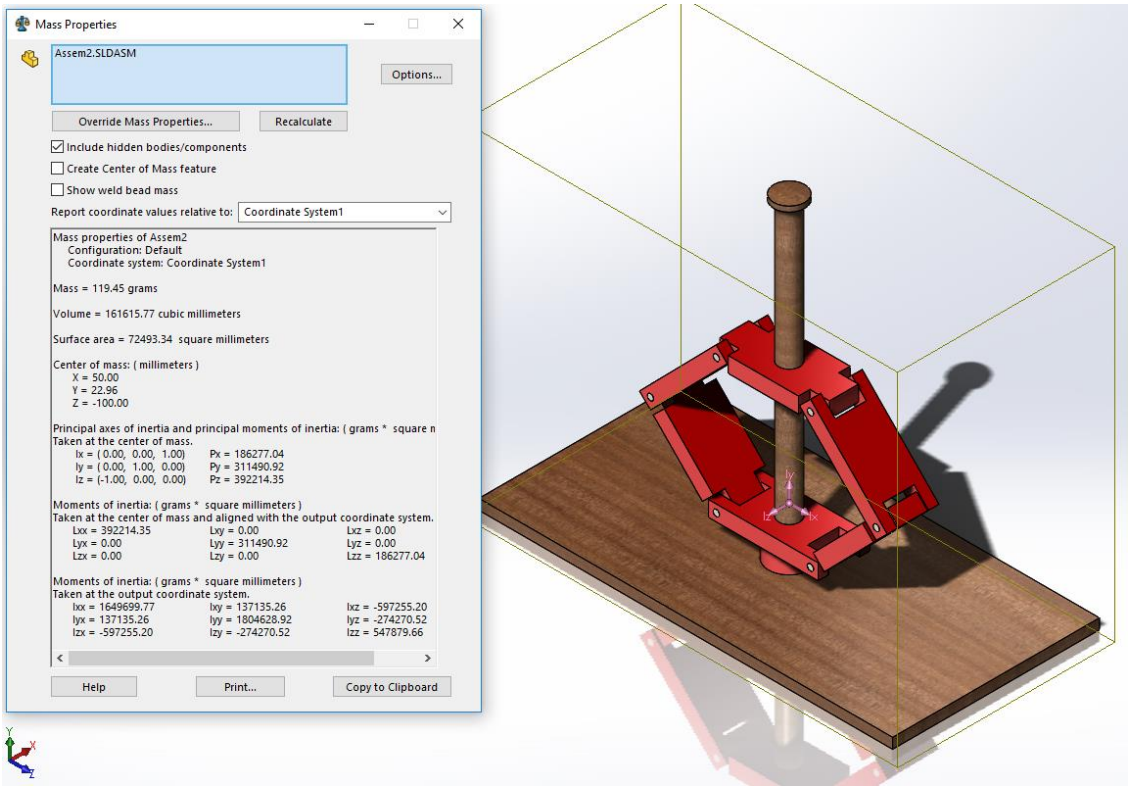
Answer: **link2-1, link2-2, link-2 and link-1.**



6&7. Change the last mate from 55 to 75mm. Create the coordinate system shown below.

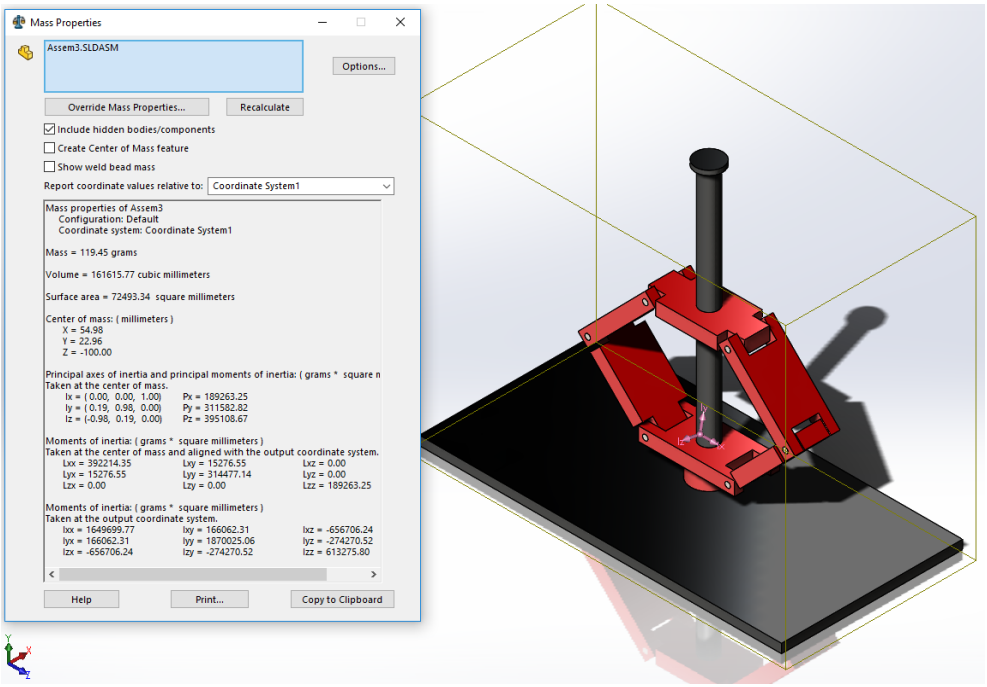
8. What is the center of mass of the assembly with respect to coordinate system 1?

Answer: **X: 50.00 mm Y: 22.96 mm Z: -100.00mm**



9&10. Replace “base” with “base2”.What is the center of mass of the assembly with respect to Origin1?

Answer: **X: 54.98mm Y: 22.96mm Z: -100.00mm**



Lessons Learned/Commentary:

1. When creating the first part on the practice exam I found a small lip on the edge between the cylindrical boss and the four triangular extruded boss's connected to it. This was not supposed to be here. This happened because the upper edge of the triangle is a little further back than the lower edge in order to get rid of this lip. However, I found this after the point where I would have normally turned in this test. This means the rest of the test would have been slightly off. I learned to pay more attention to the little things in the part we are asked to build.

2. I learned what collision detection is and how to use it.

3. I learned what Interference Detection is and how to use it.

4. I Found up I need to practice more, I can complete everything accurately, however, I am not fast enough.