

SOLIDWIZE

ONLINE SOLIDWORKS TRAINING

CSWP Sample Exam 2 (2012)

Segment 3 of the CSWP Core

- This test is made up of a series of problems broken down into sets of questions. Each problem set of questions comes with a description that outlines the problems to be solved for that set.
- This section contains 11 questions
- You should be able to complete all 11 questions within 80 minutes
- Consult answer key after completion of this section

Segment 3- Assemblies

Question 1-Base Part

Unit System: MMGS (millimeter, gram, second)

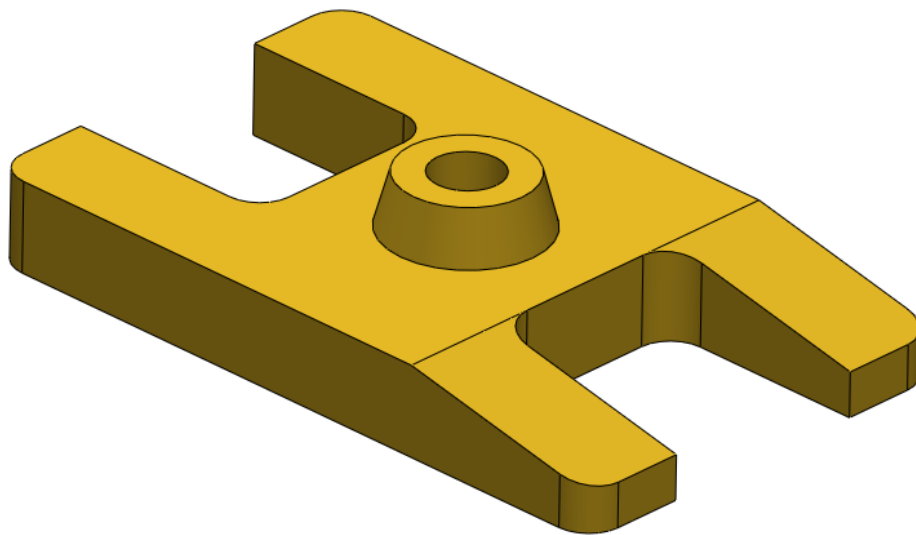
Decimal Places: 2

Material: Brass

Density: 8500 kg/m³

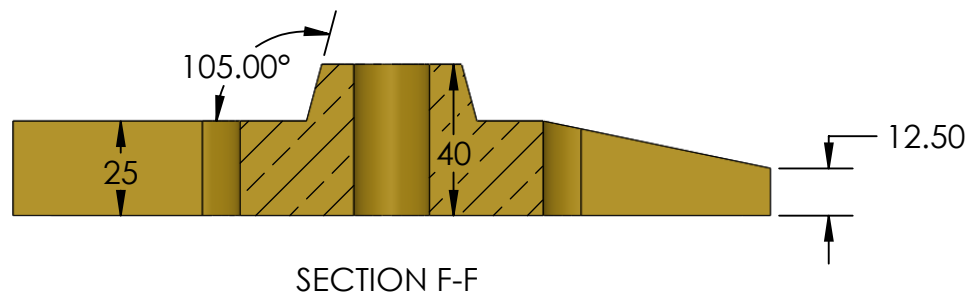
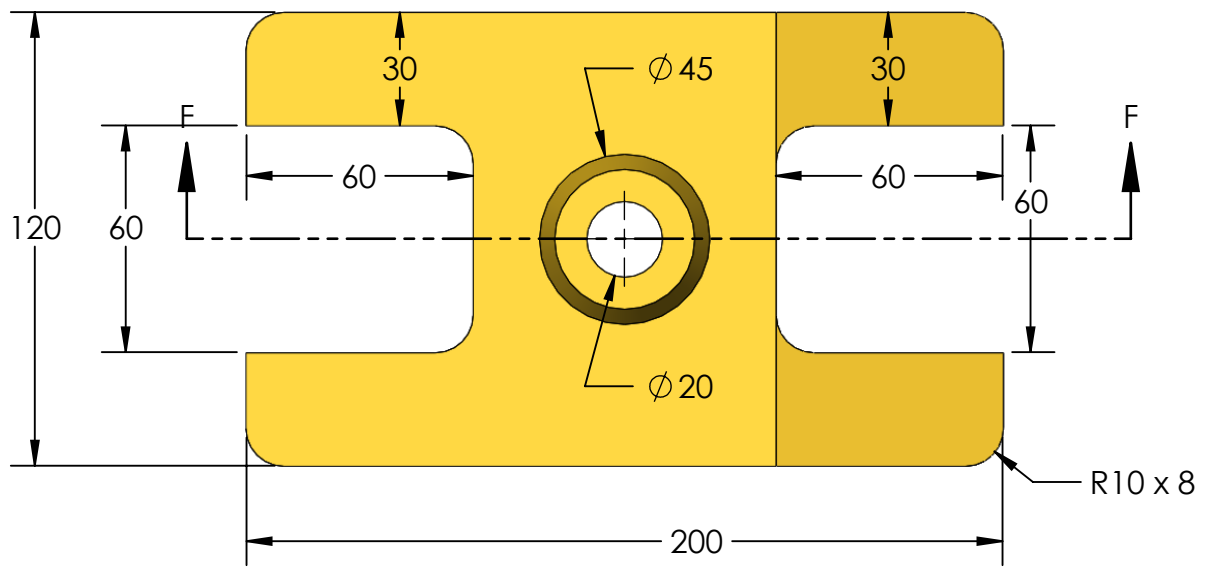
Part Origin: Arbitrary

-Create the part below. Dimensions follow on the next page. Name the part base.sldprt.



What is the mass of the part (grams)?

3444.87



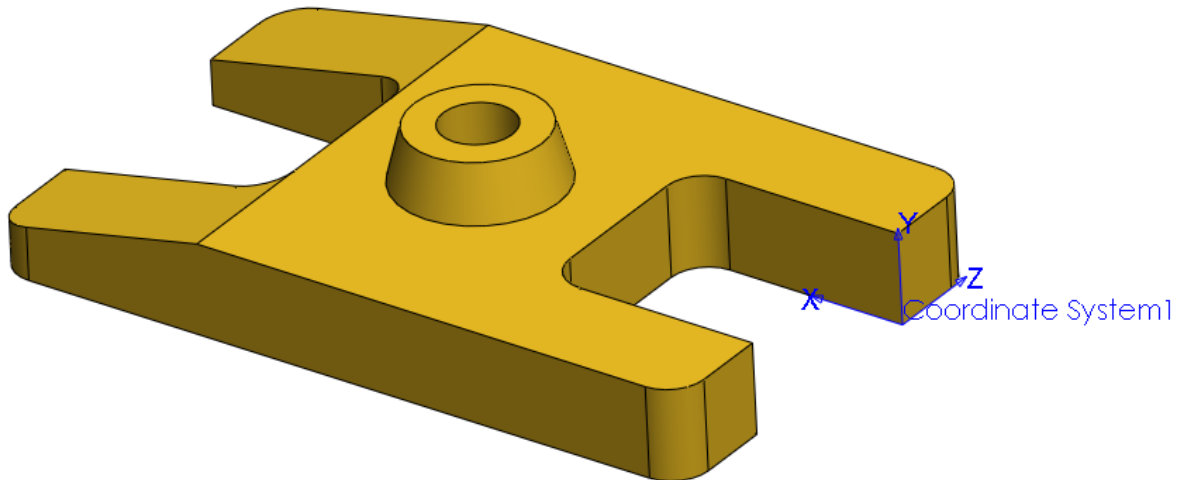
Question 2- Create an Assembly

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

-Create a new assembly with the base part (position is arbitrary)

-Create the coordinate system as shown in the picture



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

- a. $X = 95.68, Y = 12.77, Z = -30.00$
- b. $X = 4.32, Y = 12.77, Z = 0.00$
- c. $X = -4.32, Y = 12.77, Z = 0.00$
- d. $X = -95.68, Y = 12.77, Z = 30.00$

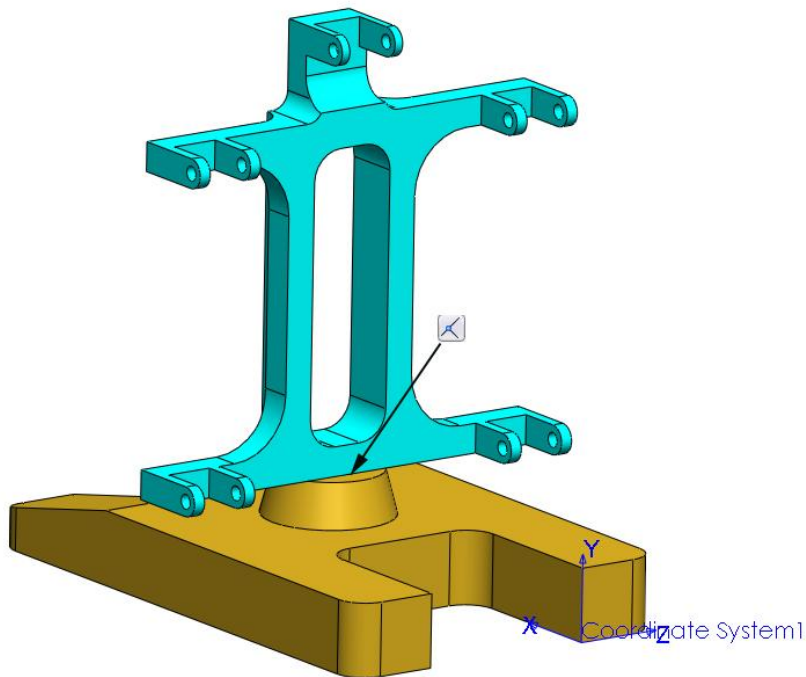
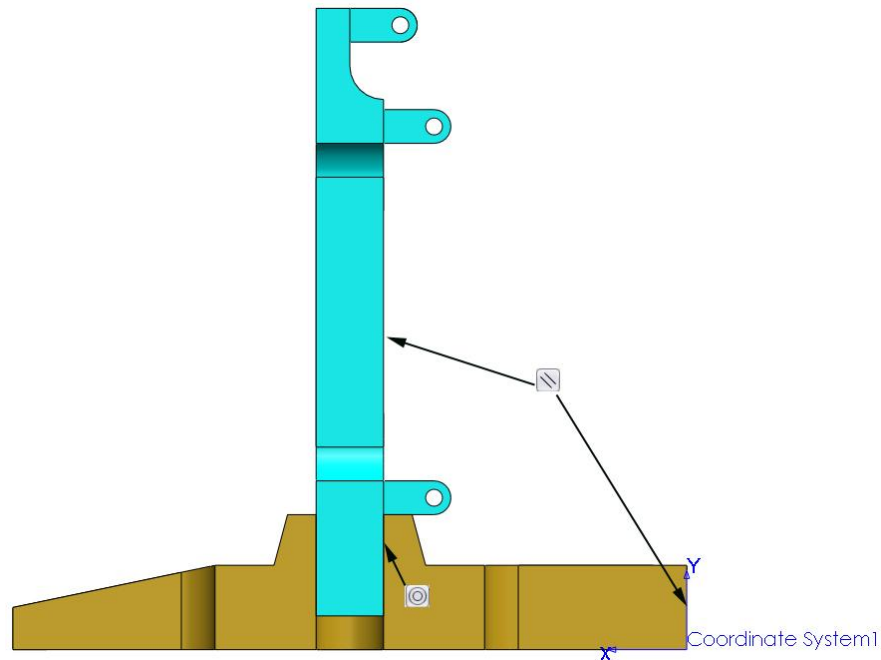
Question 3- Add in a Part

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

Use Coordinate System 1

-Add Arm_Mount.sldprt to the assembly as shown in the images below



What is the center of mass of the assembly?

X= Y= Z=

X = 96.04
Y = 29.24
Z = -30.00

Question 4- Add Another Part

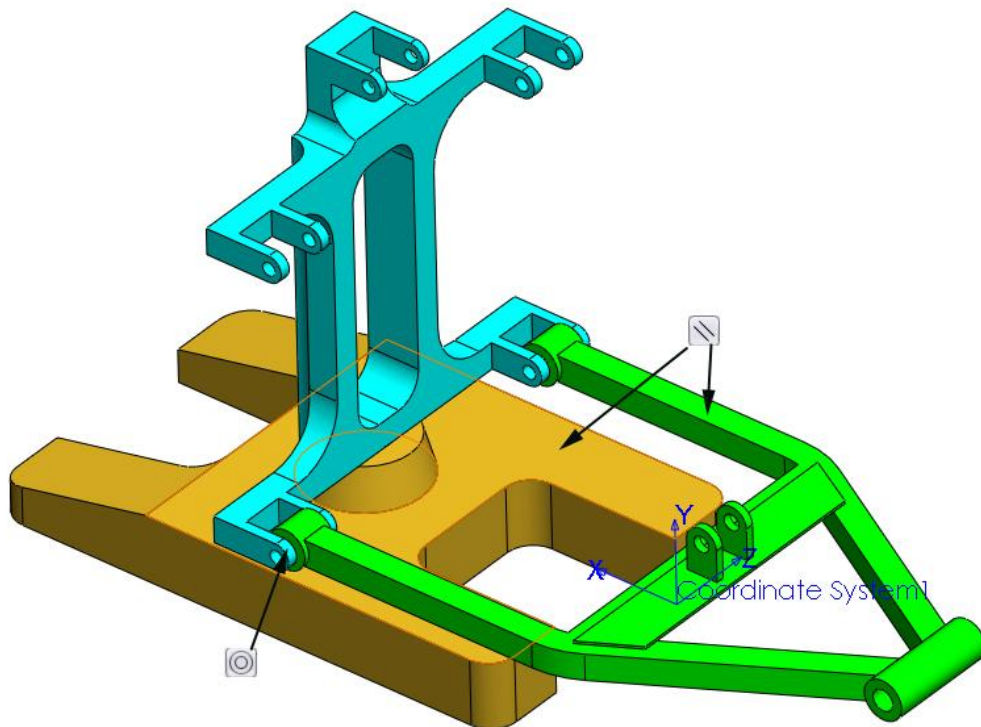
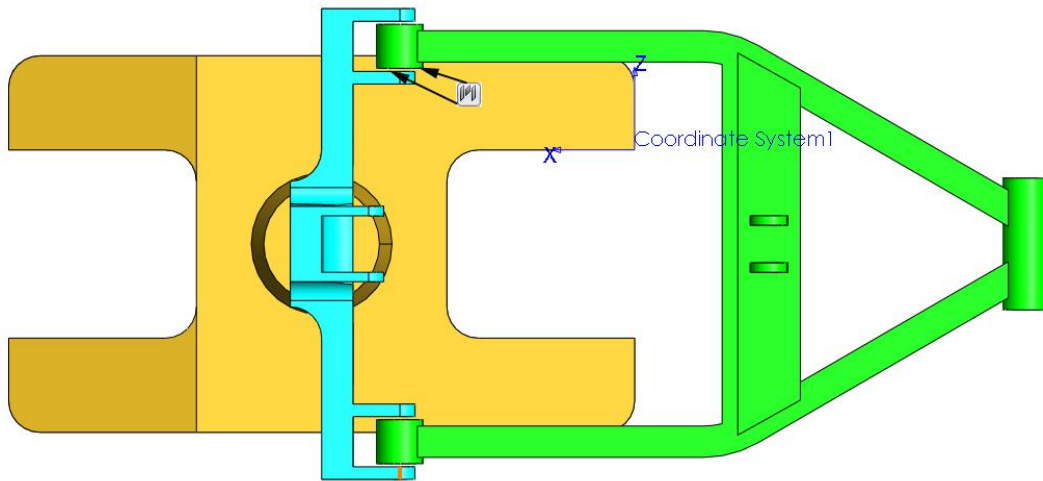
Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

Use Coordinate System 1

-Add Arm_lower.sldprt to the assembly as shown in the images below

-Arm is centered between the tabs (width mate)



What is the center of mass of the assembly?

X= Y= Z=

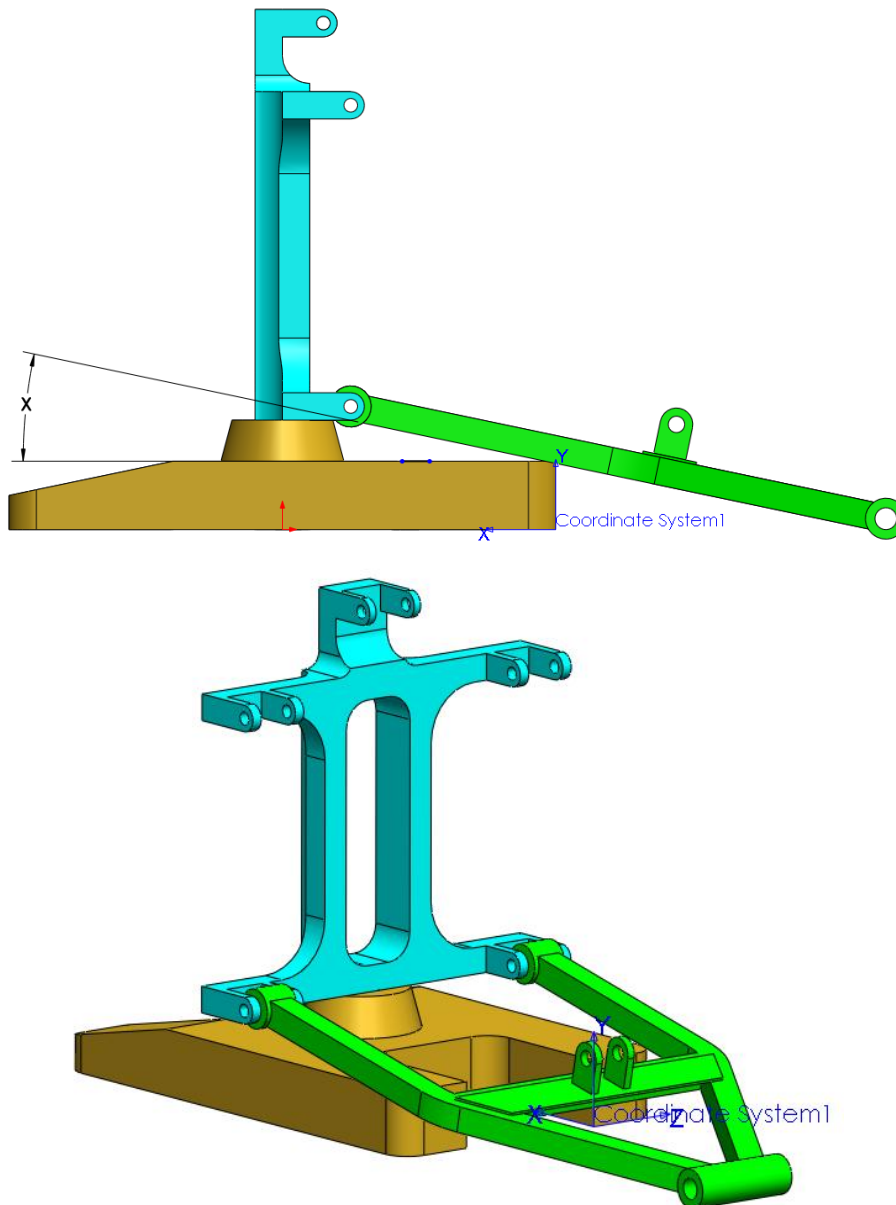
X = 91.09
Y = 29.87
Z = -30.00

Question 5-Collision Detection

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

- Delete the parallel relationship from question 4
- Rotate the assembly as shown.
- Use Collision Detection with “stop at collision” turned on



What is the angle indicated by “X”?

11.83

Question 6- Create a new assembly

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

-Create a new assembly and add in Shock_Housing.sldprt

-This assembly will be a subassembly in the assembly from Question 2

-The new assembly will be referred to as "Shock.sldasm"



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

117.32

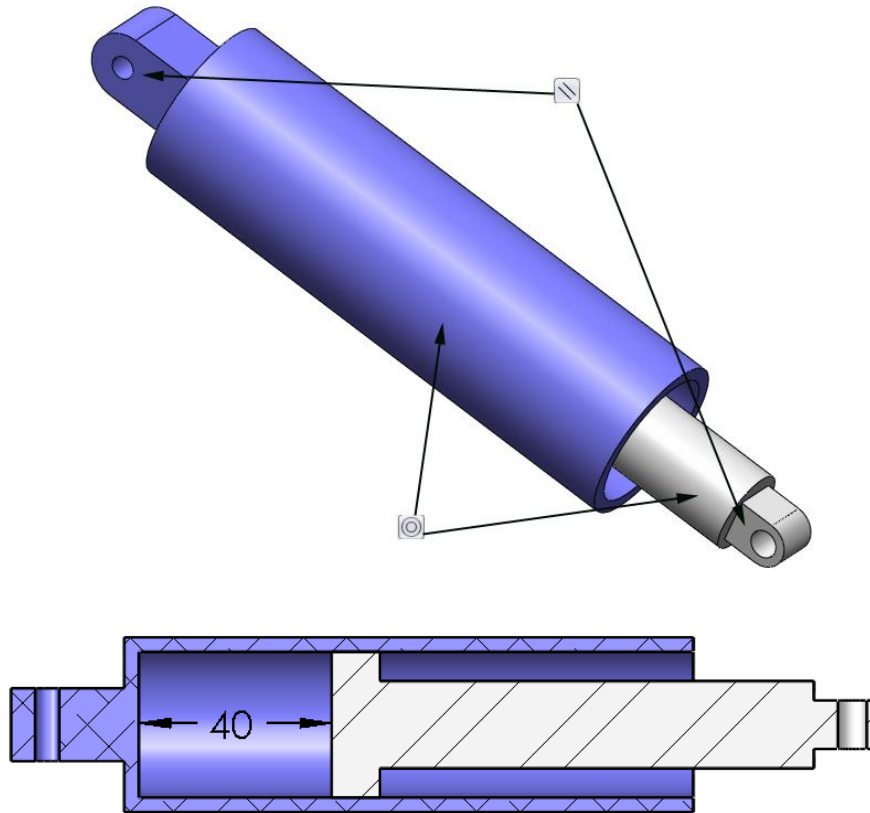
Question 7-Add a Part to the Subassembly

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

-Add Piston.sldprt

-Create the appropriate mates as shown.



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

a. 216.50

b. 428.03

☒ c. 358.19

d. 314.61

Question 8- Adding a Subassembly

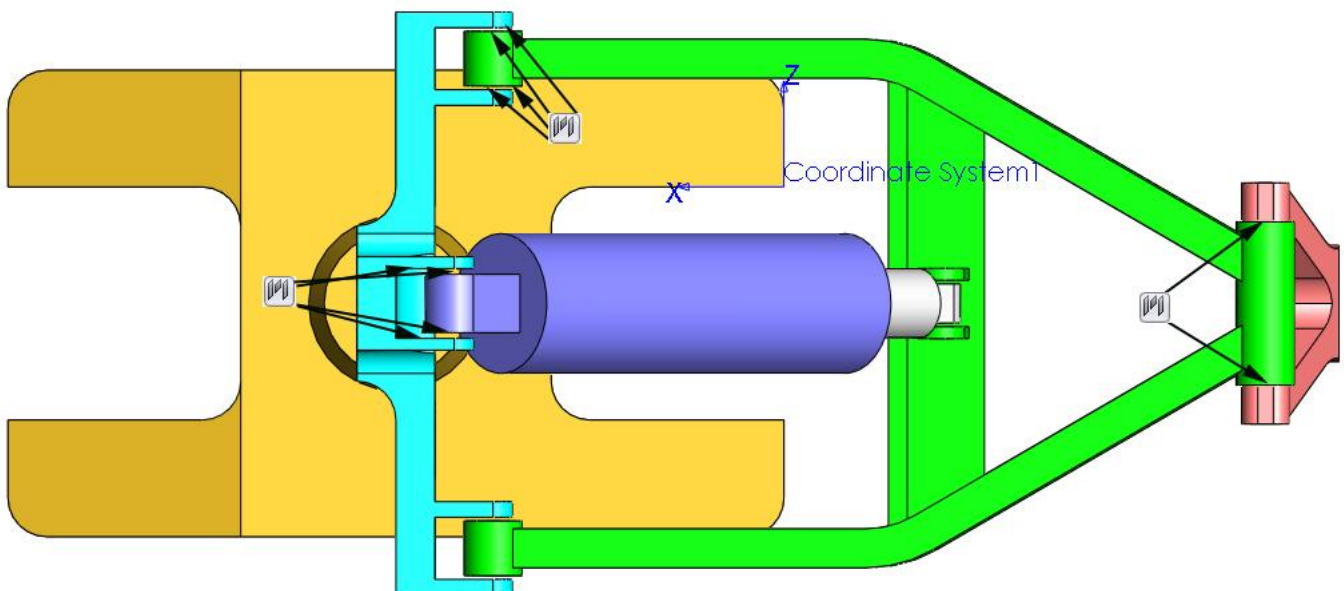
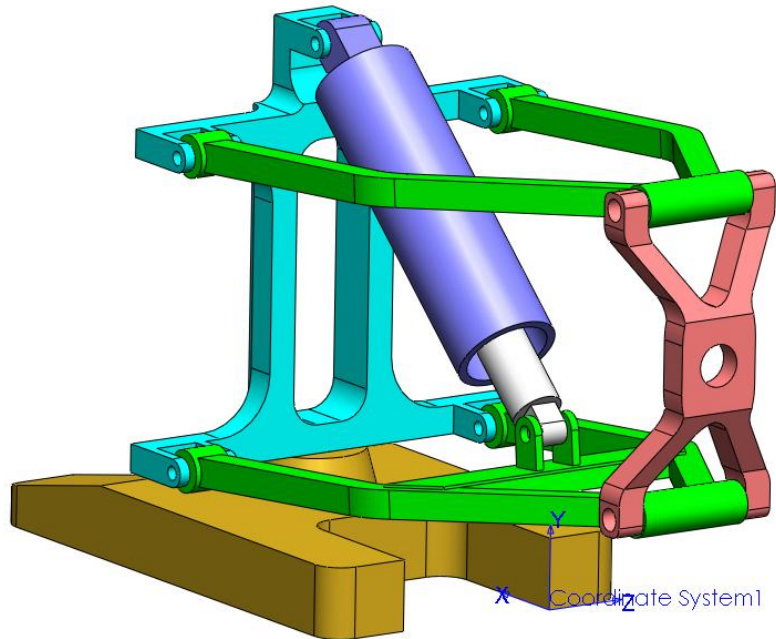
Unit System: MMGS (millimeter, gram, second)

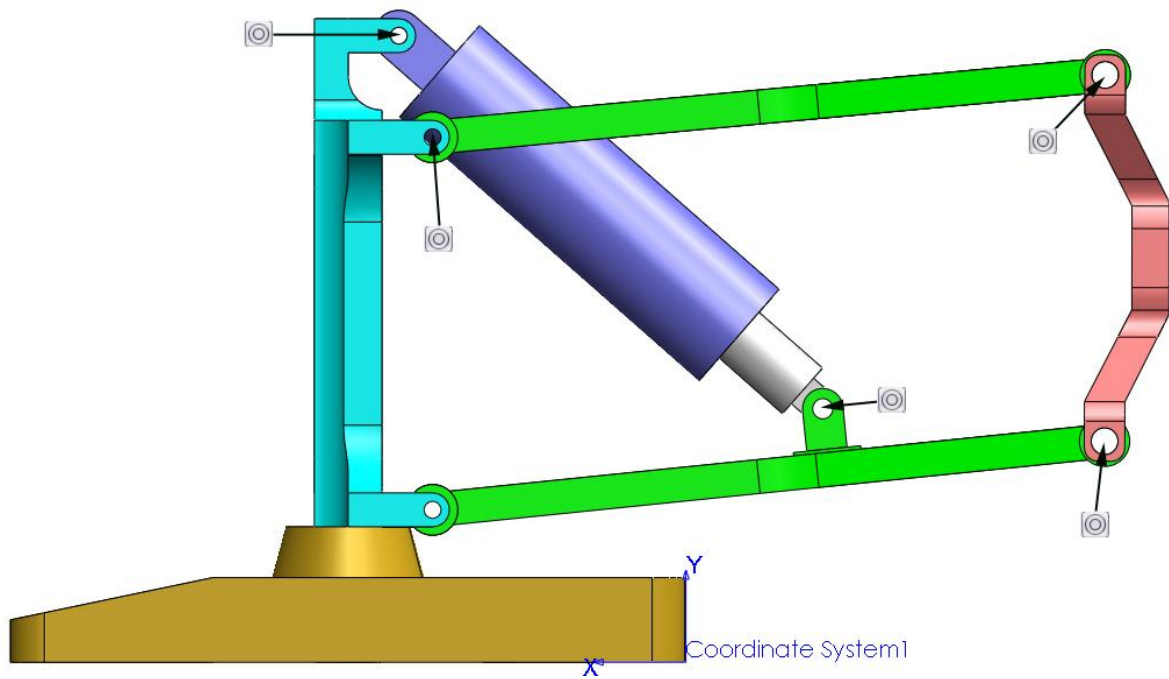
Decimal Places: 2

Use Coordinate System 1

-Add Shock.sldasm, Arm_upper.sldprt, and knuckle.sldprt to the original assembly created in question 2 as shown below

-No modifications to Shock.sldasm should be made





What is the center of mass of the assembly?

- a. $X=54.52, Y=16.28, Z=-90.42$
- b. $X=79.20, Y=42.03, Z=-30$**
- c. $X=-79.20, Y=14.61, Z=-53.26$
- d. $X=20.80, Y=42.03, Z=0.00$

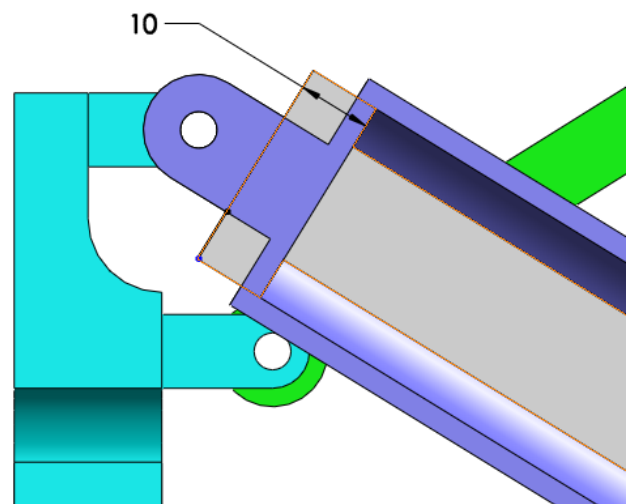
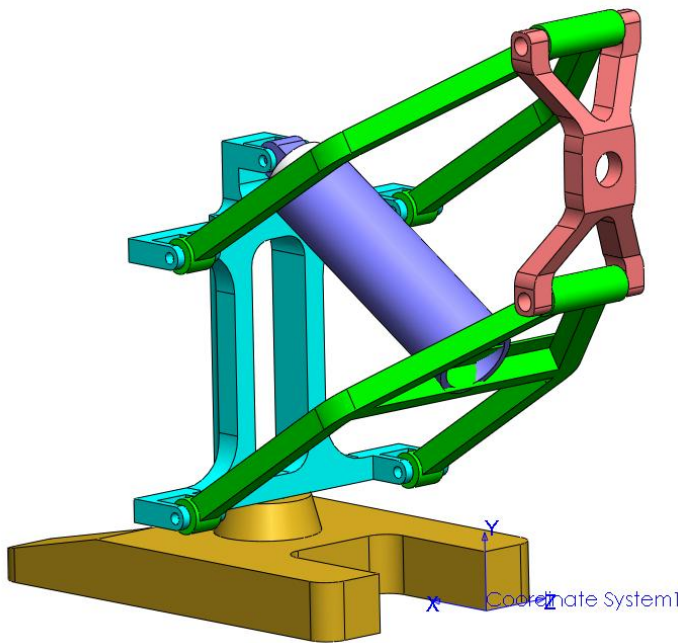
Question 9- Interference Detection

Decimal Places: 2

-Change the distance between the Piston and Shock_Housing as shown (note that the distance mate has been flipped)

-Use Interference Detection to determine collisions between the parts

-The only box that should be checked in the Interference Detection Options is “make interfering parts transparent”



Which parts have interferences (check all that apply)?

☐ __Arm_Mount

☒ __Arm_Lower

☒ __Arm_Upper

☐ __Base

☒ __Knuckle

☒ __Piston

☒ __Shock_Housing

Question 10- Flexible Subassembly and Create a new Part

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

Use Coordinate System 1

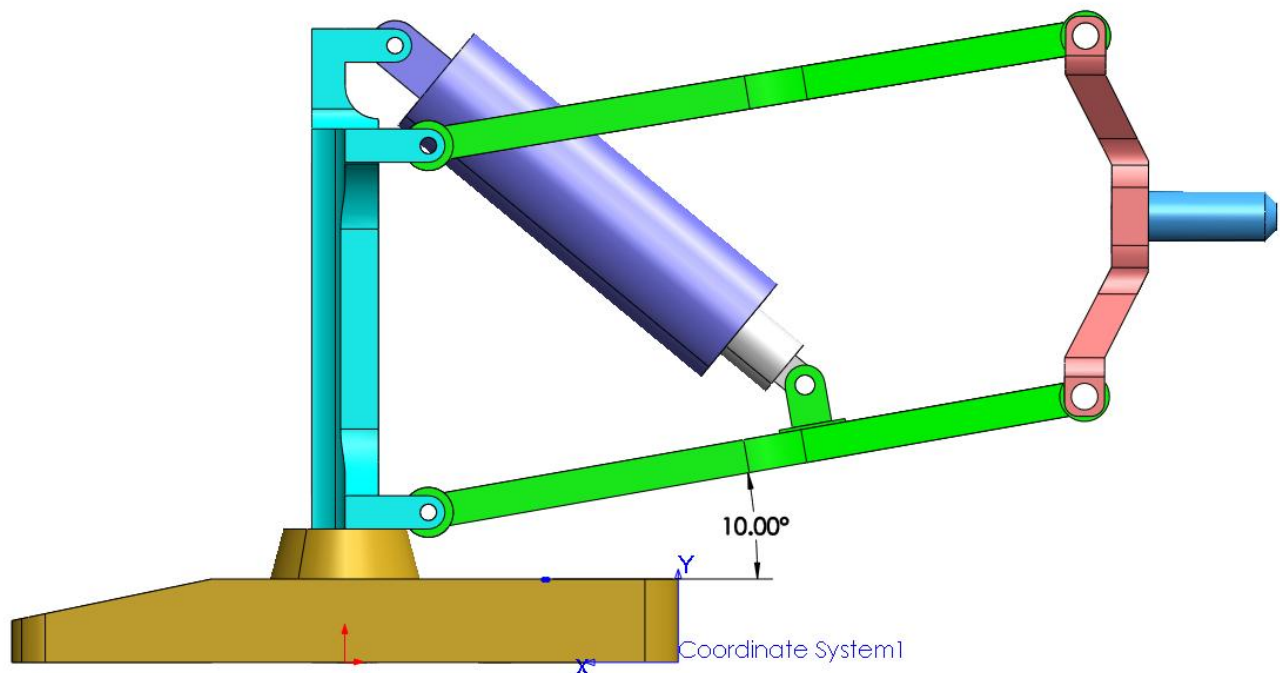
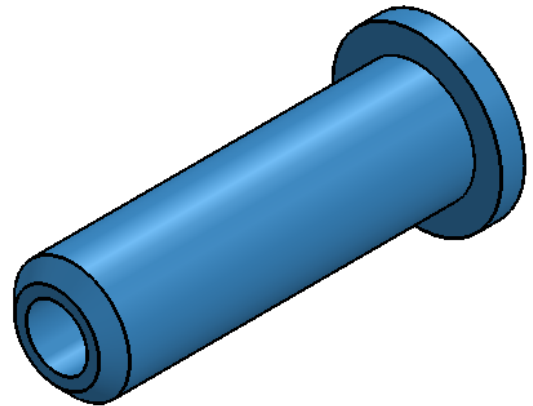
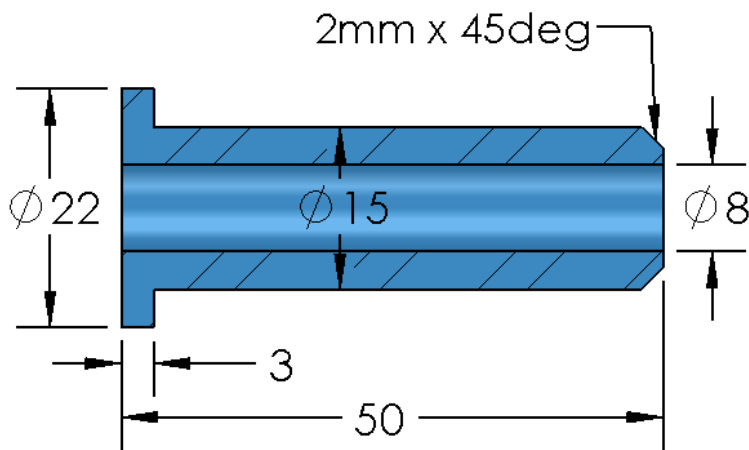
Material of new part: Plain Carbon Steel

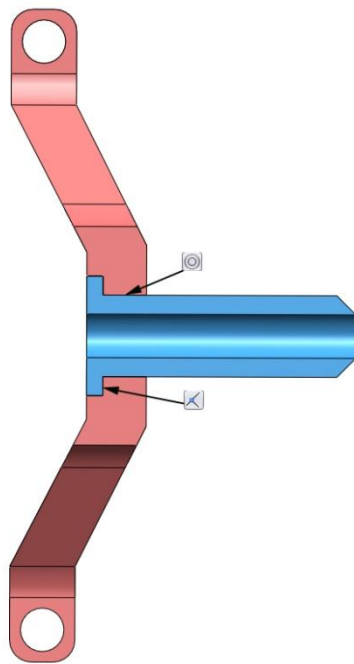
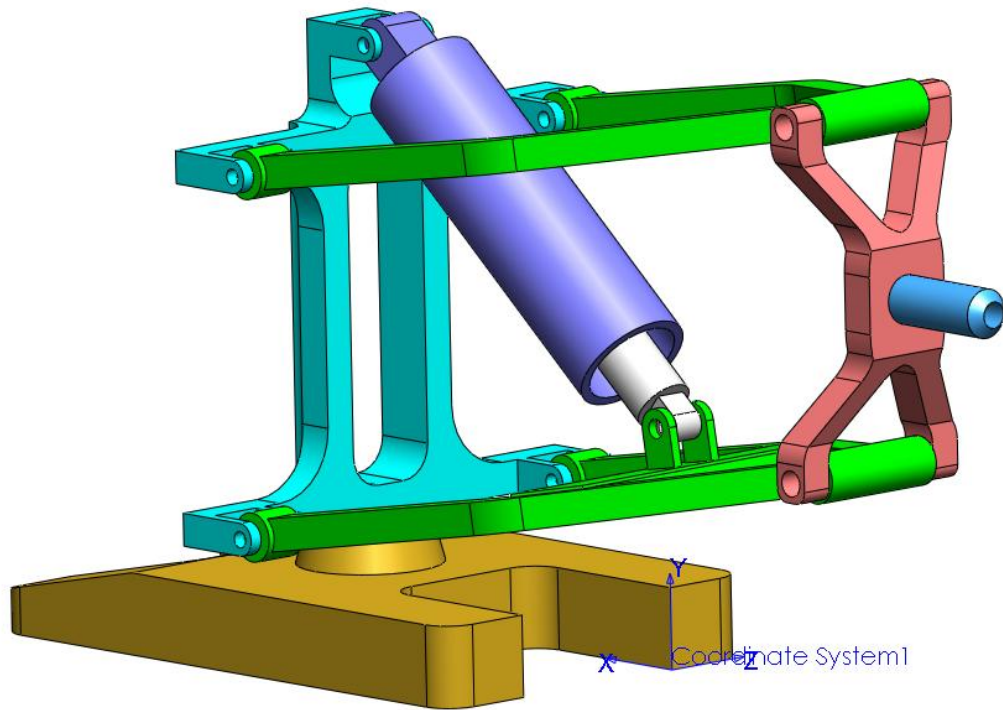
Density: 7800 kg/m³

-Suppress the distance mate in Shock.sldasm and make Shock.sldasm Flexible in the top level assembly

-Create the part shown below (spindle.sldprt)

-Add any other mates necessary as indicated below





What is the center of mass of the assembly?

X= Y= Z=

X = 76.98
Y = 44.04
Z = -30.00

Question 11- Replace Components

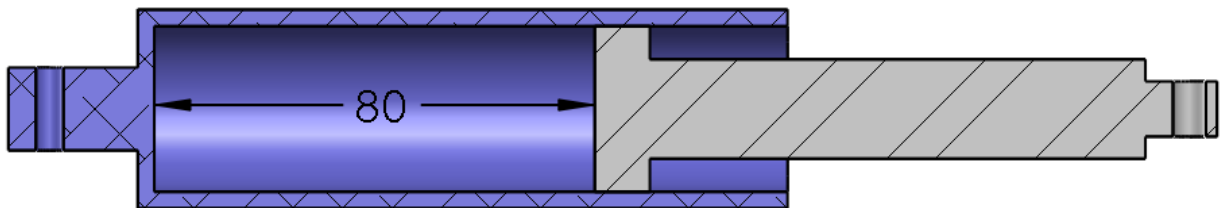
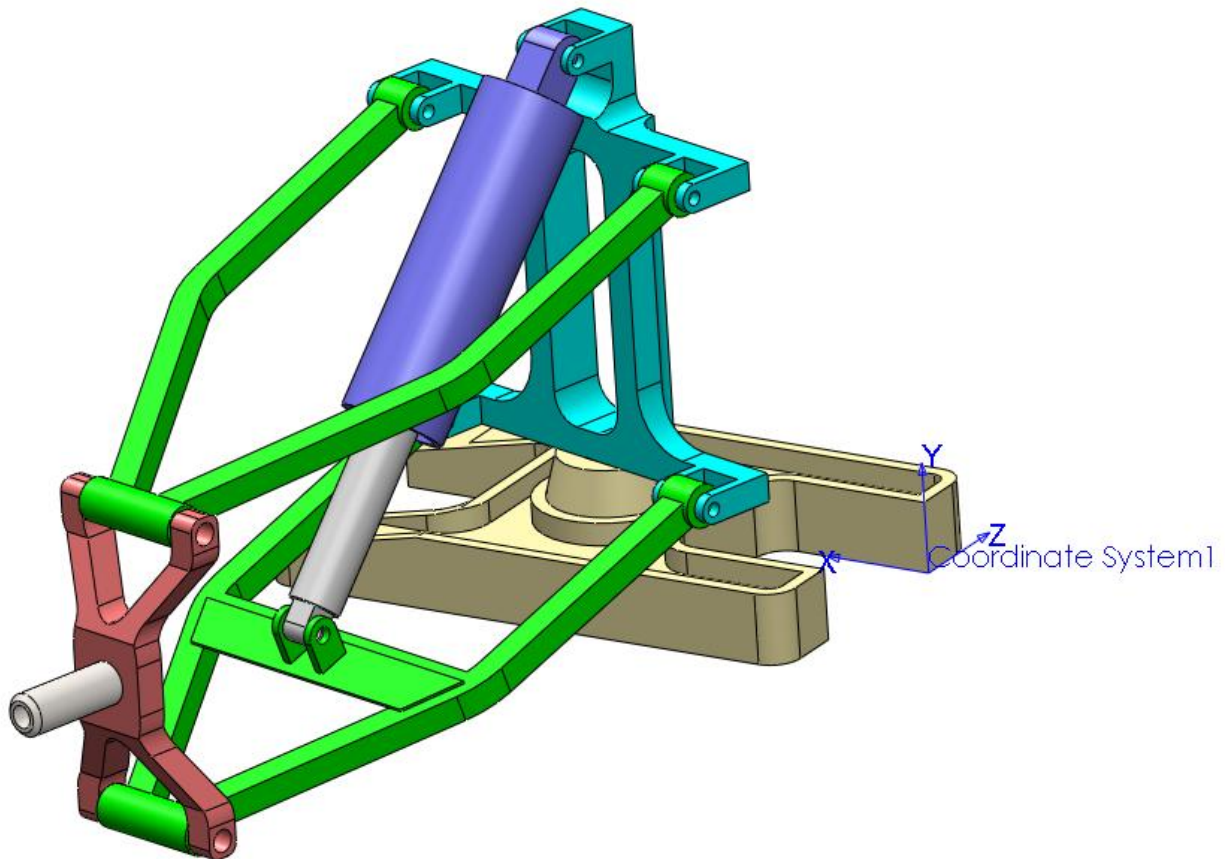
Unit System: MMGS (millimeter, gram, second)

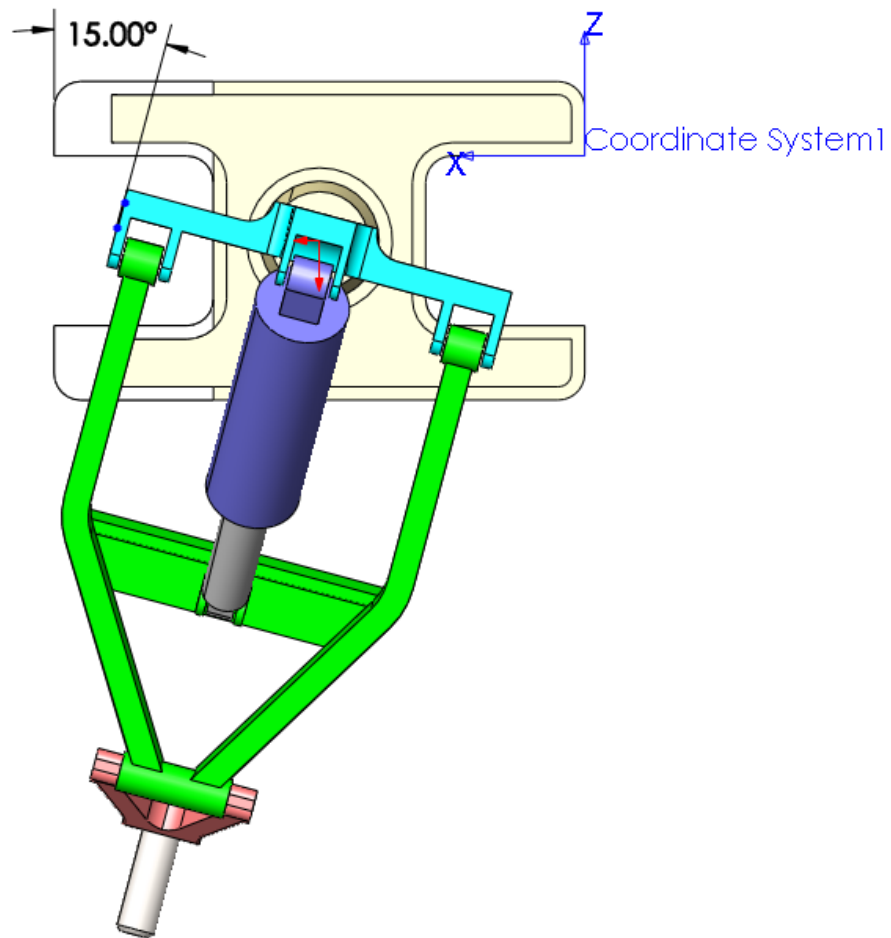
Decimal Places: 2

Use Coordinate System 1

-Replace the base part with Base_B.sldprt

-Make the necessary changes based on the images below (angle mate from Q10 is eliminated)





What is the center of mass of the assembly?

X=

Y=

Z=

X = 104.28

Y = 37.83

Z = -54.23