

# 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)

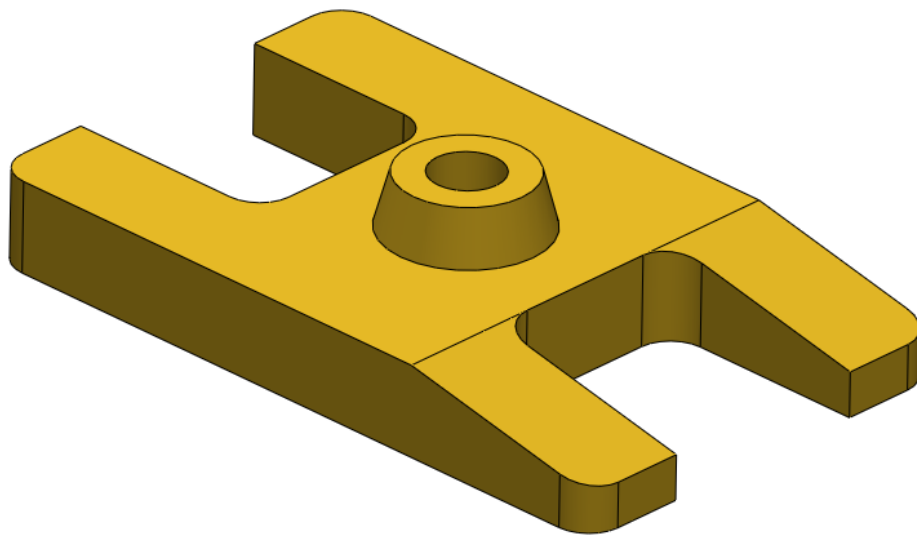
Decimal Places: 2

Material: Brass

Density: 8500 kg/m<sup>3</sup>

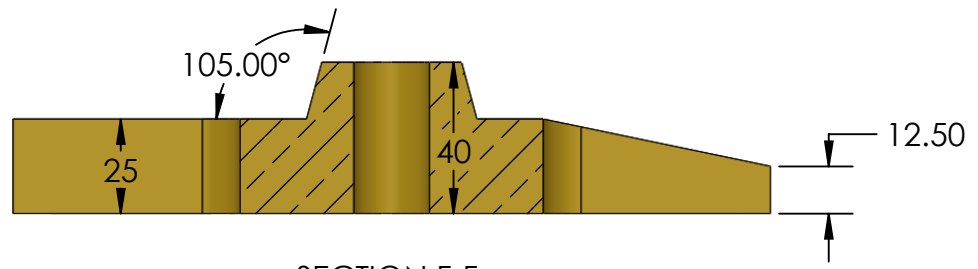
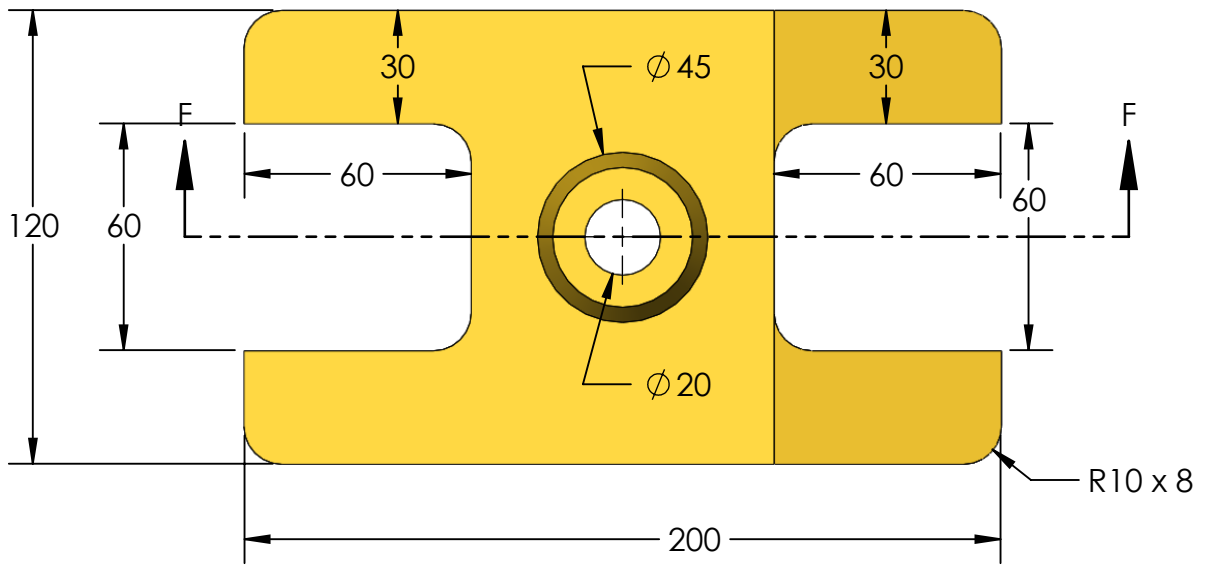
Part Origin: Arbitrary

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



What is the mass of the part (grams)?

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SECTION F-F

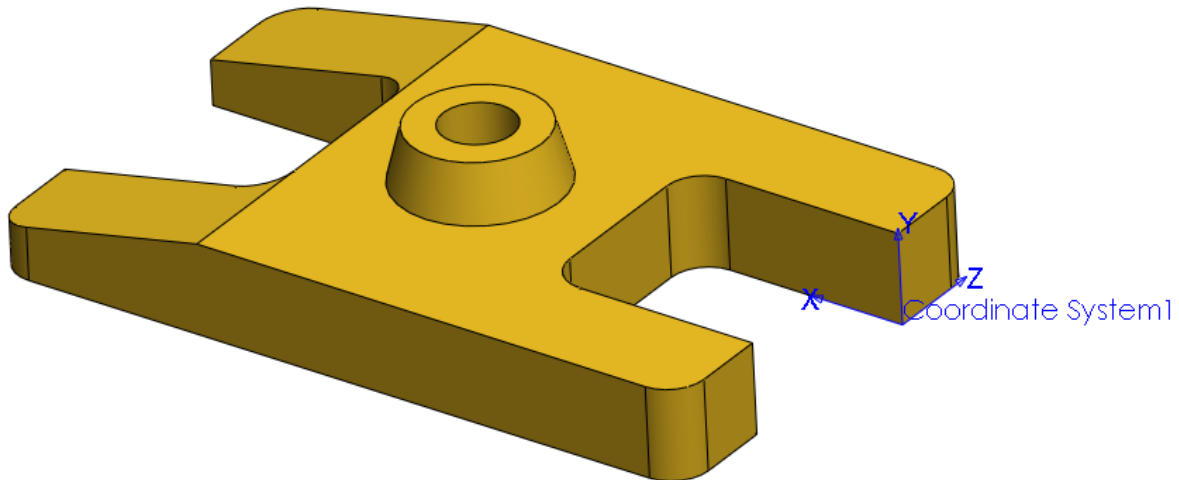
## Question 2- Create an Assembly

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.  $X= -95.68, Y=12.77, Z= 30.00$

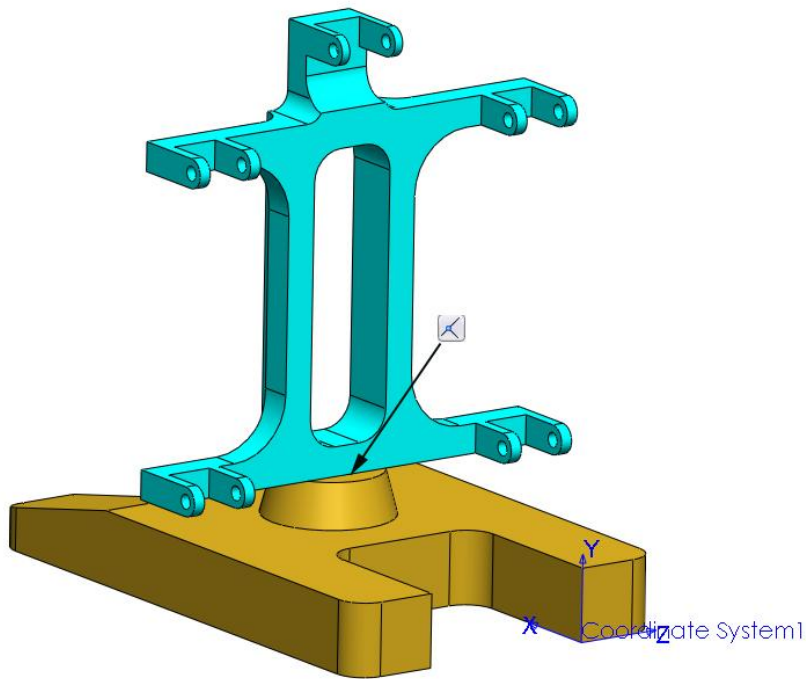
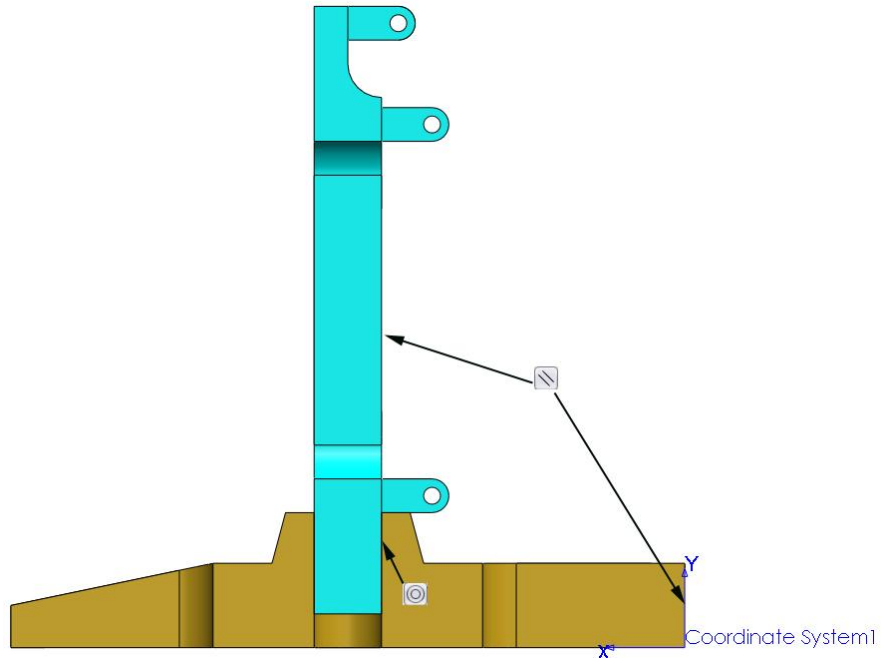
### Question 3- Add in a Part

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=

### Question 4- Add Another Part

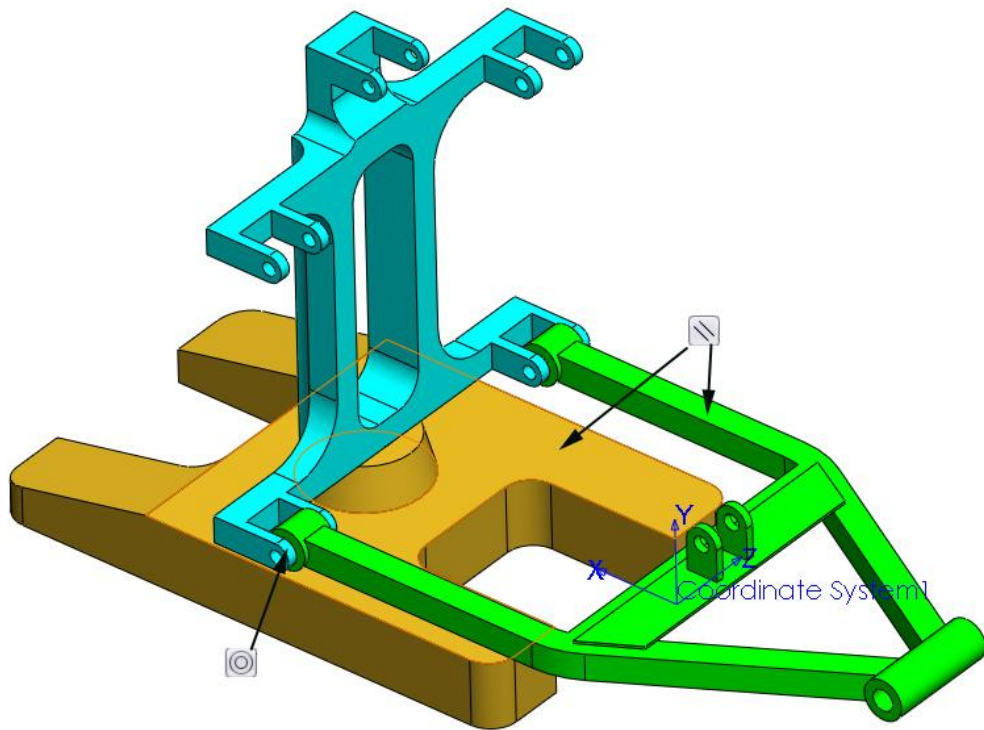
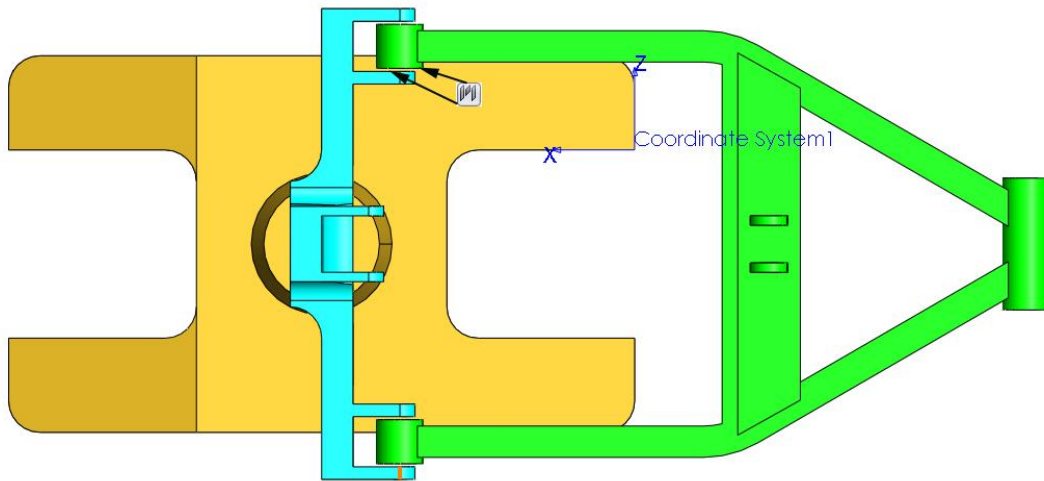
Unit System: MMGS (millimeter, gram, second)

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=

## Question 5-Collision Detection

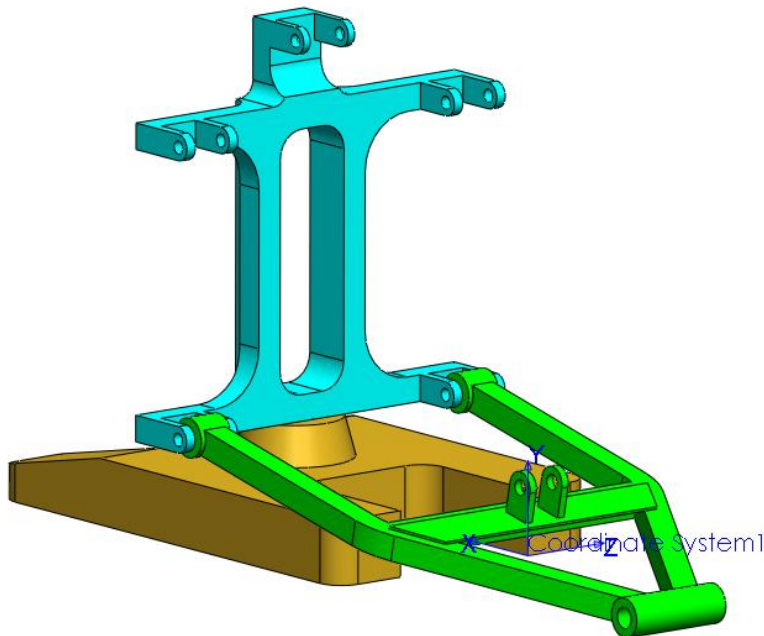
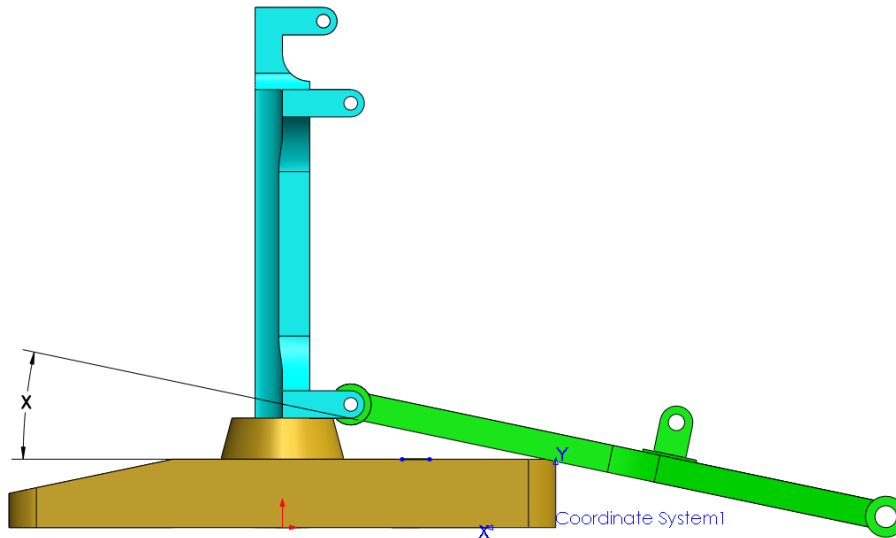
Unit System: MMGS (millimeter, gram, second)

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"?

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## 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)?

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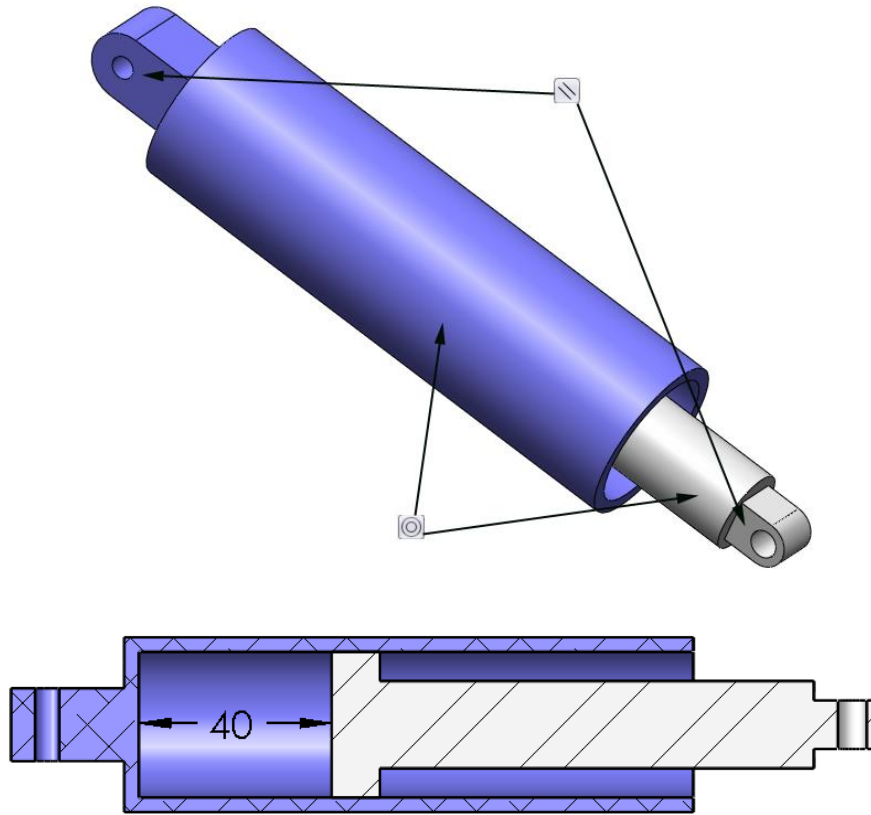
### Question 7-Add a Part to the Subassembly

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

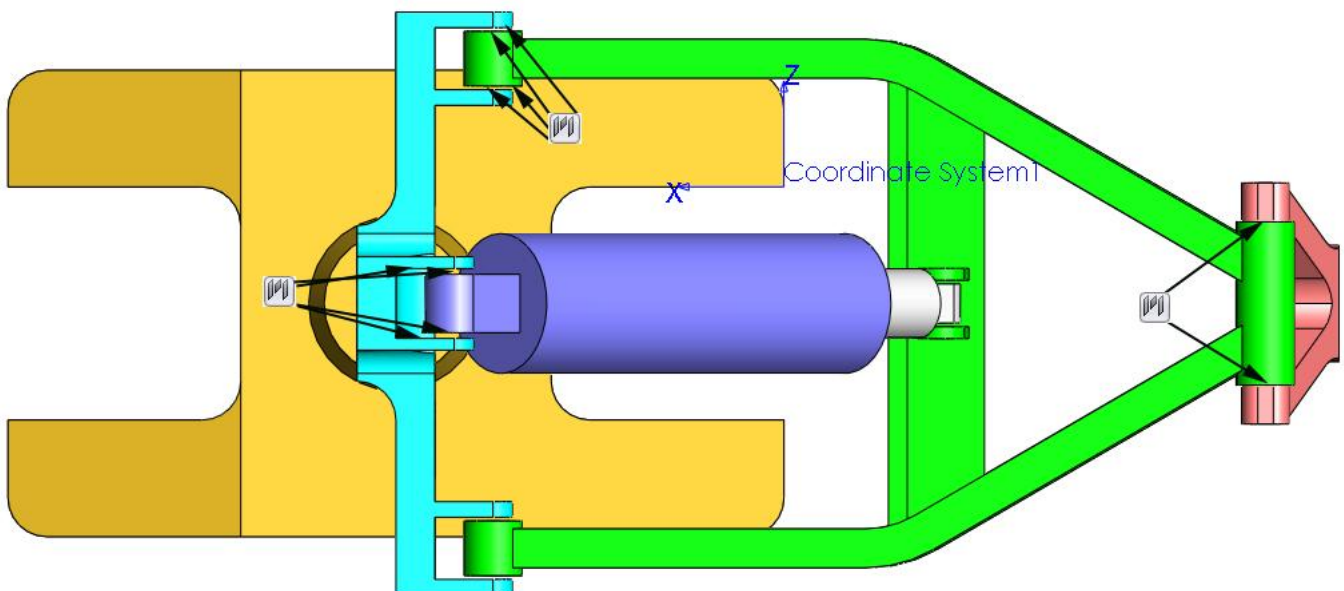
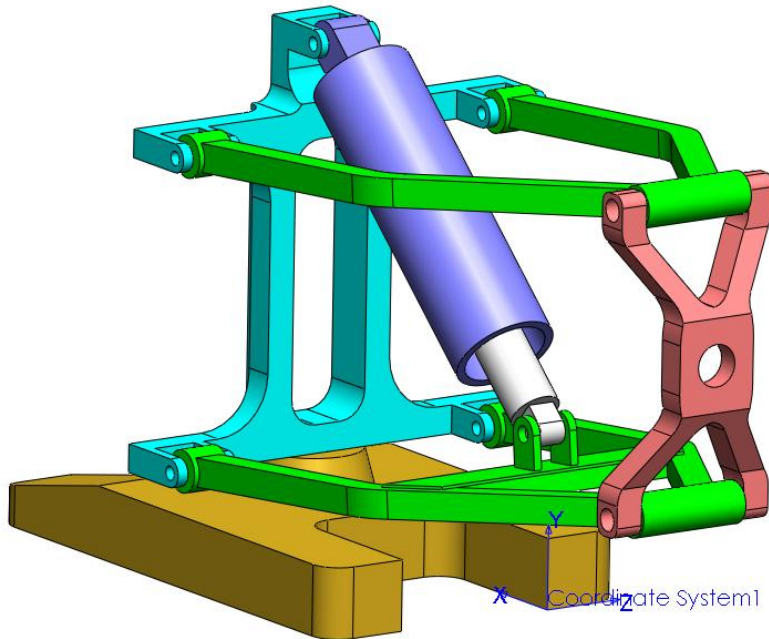
Unit System: MMGS (millimeter, gram, second)

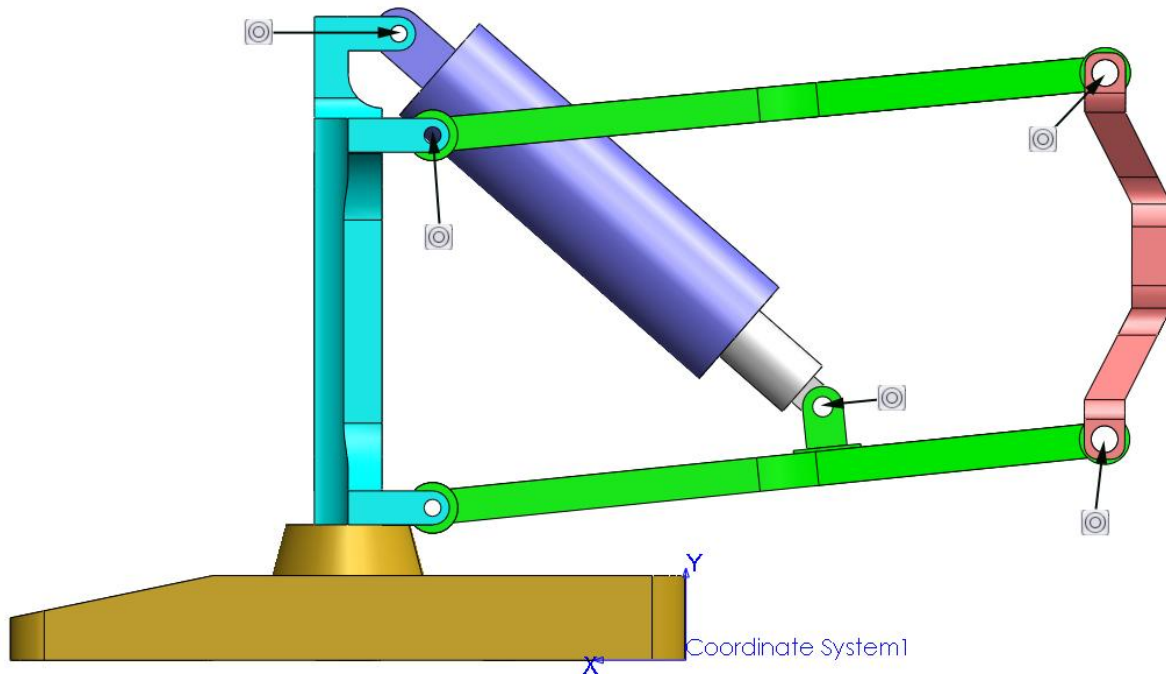
Decimal Places: 2

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.  $X= 20.80, Y=42.03, Z= 0.00$

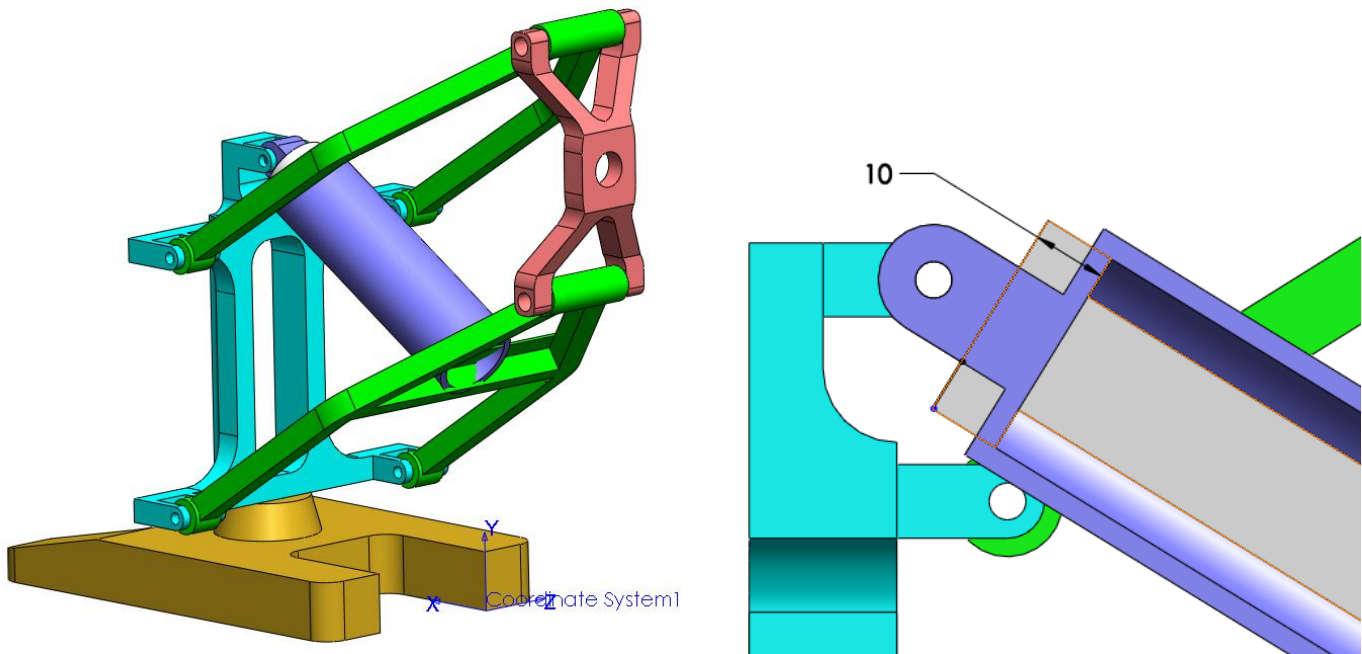
## Question 9- Interference Detection

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

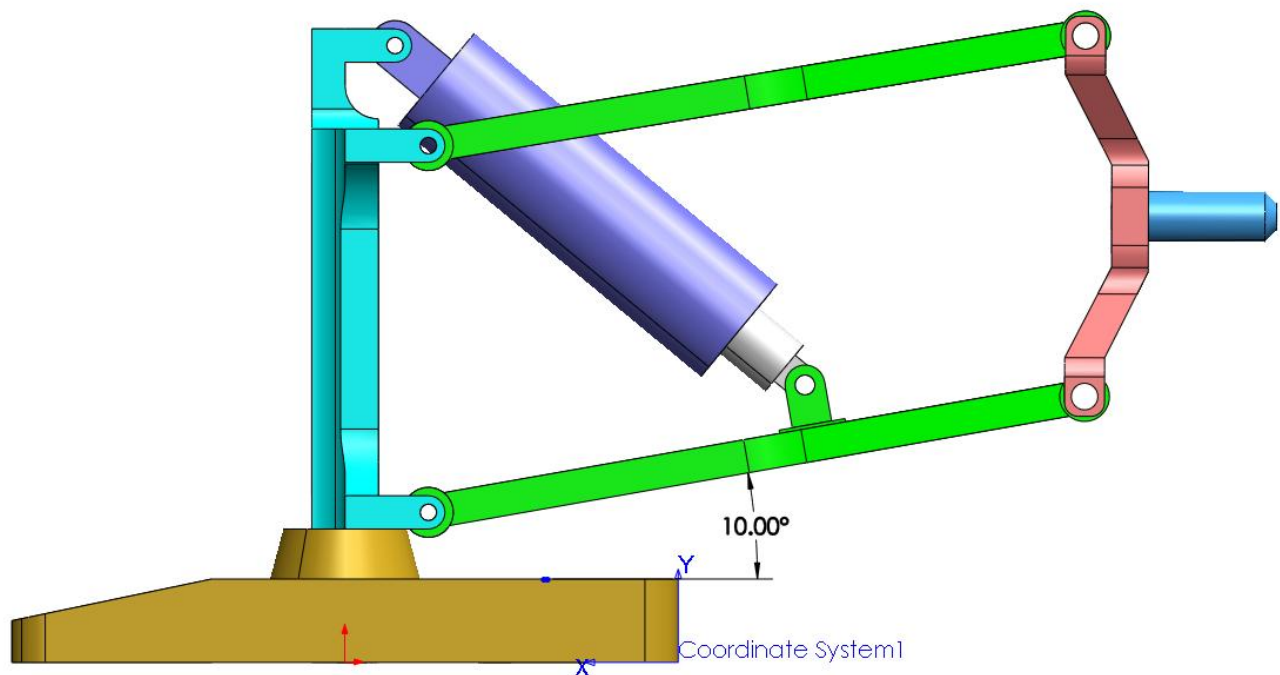
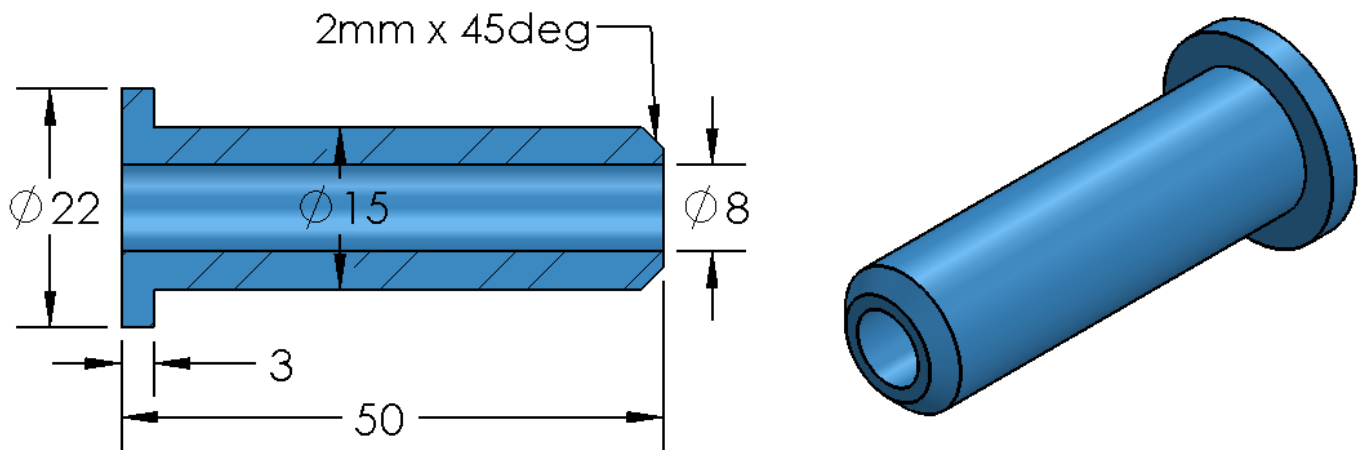
Material of new part: Plain Carbon Steel

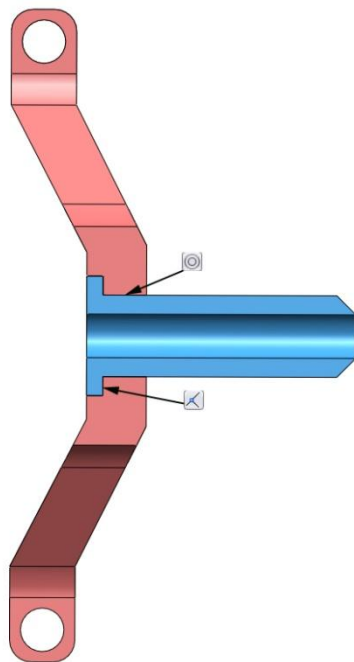
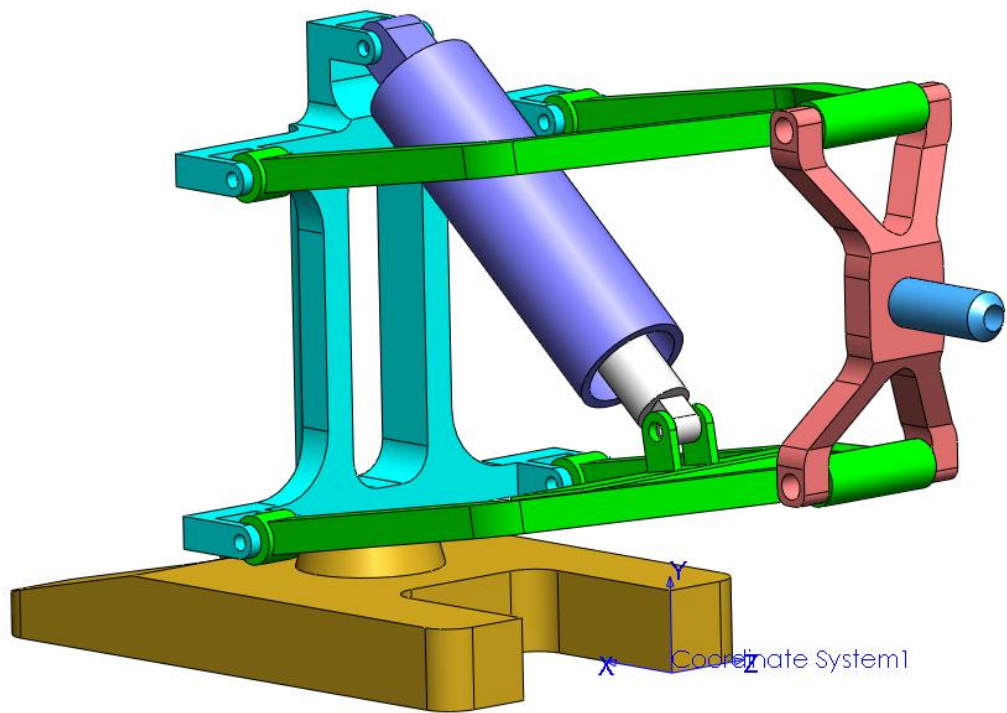
Density: 7800 kg/m<sup>3</sup>

-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=

## Question 11- Replace Components

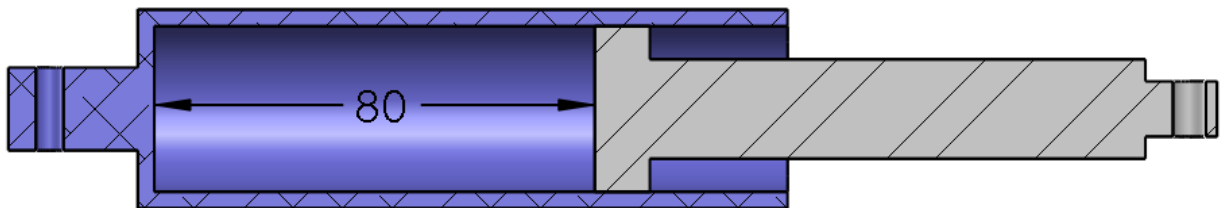
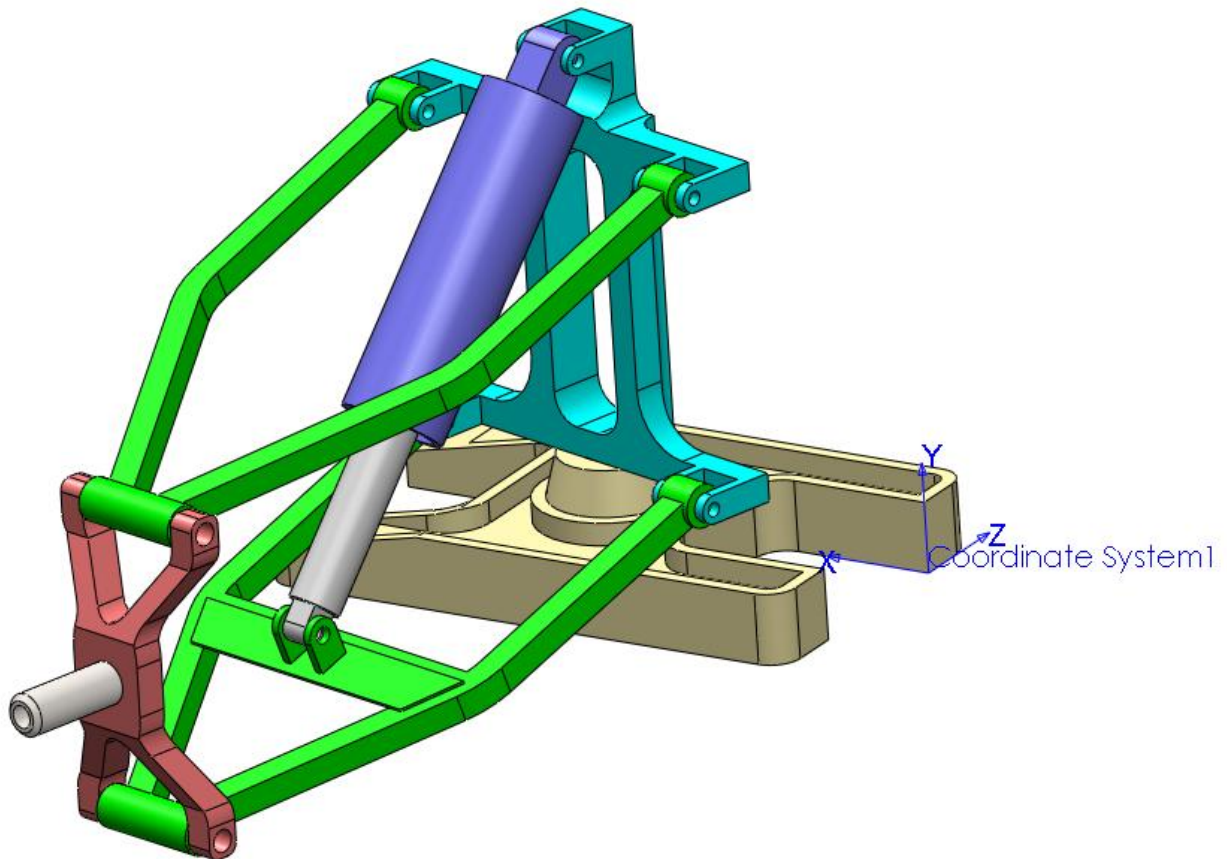
Unit System: MMGS (millimeter, gram, second)

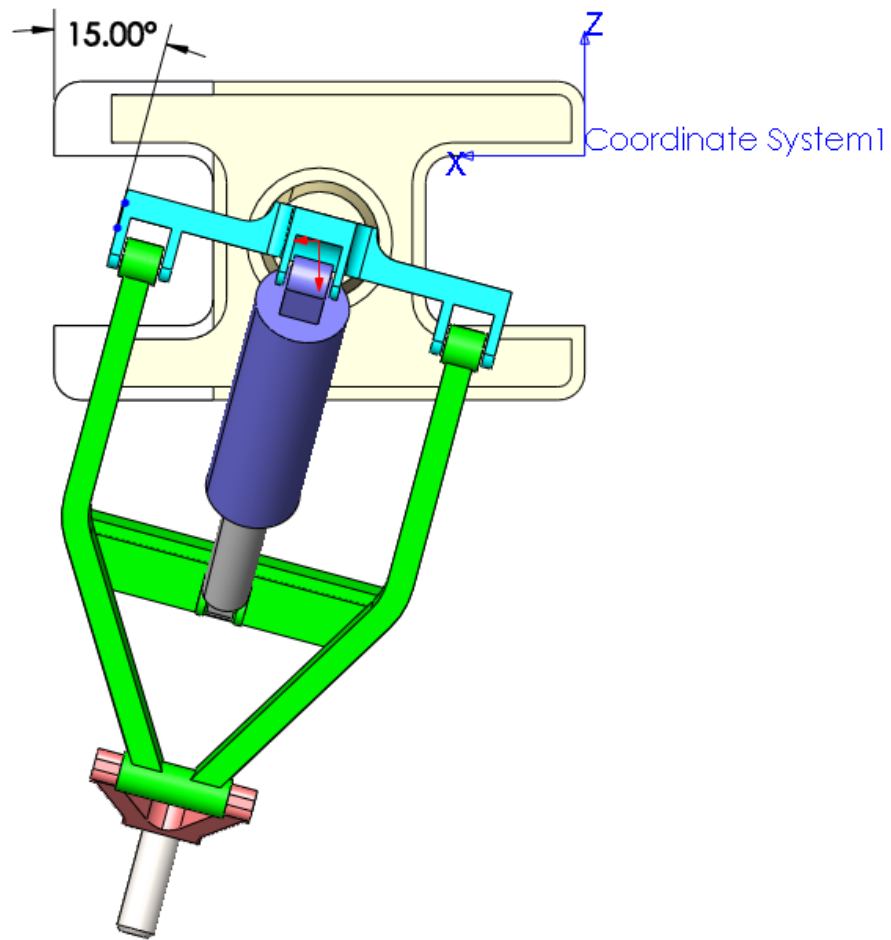
Decimal Places: 2

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=