SOLIDWIZE

ONLINE SOLIDWORKS TRAINING

CSWP Sample Exam 1 (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 10 questions

-You should be able to complete all 10 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)

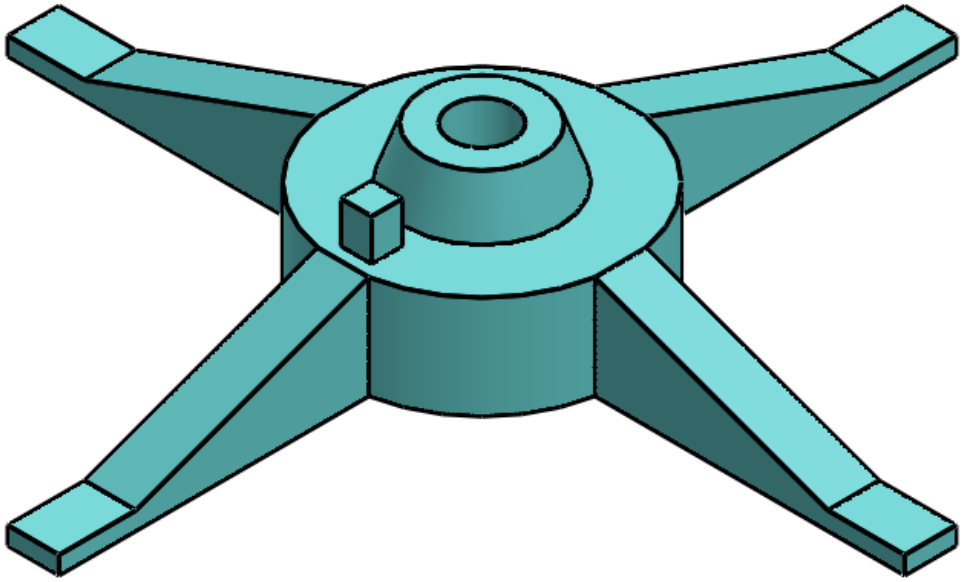
Decimal Places: 2

Material: Alloy Steel

Density: 7700 kg/m^3

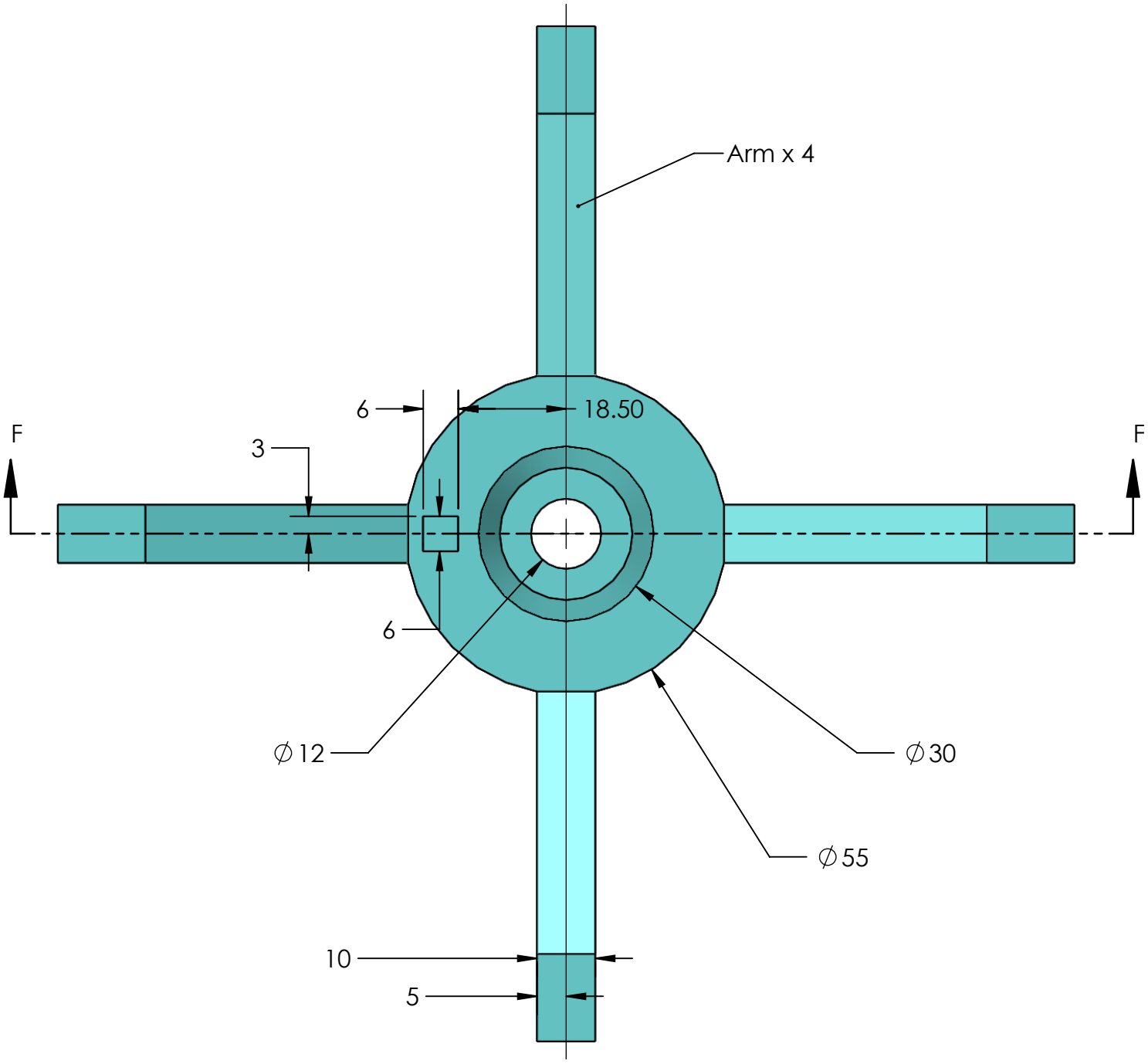
Part Origin: Arbitrary

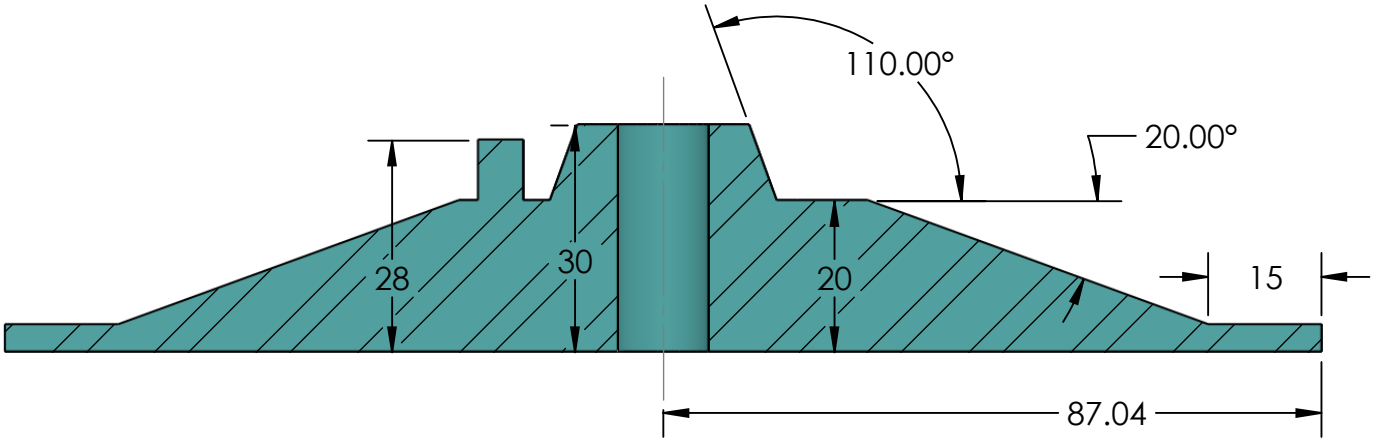
-Create the part below. Dimensions follow on the next page. Name the part base.sldprt.



What is the mass of the part (grams)?

_____





SECTION F-F

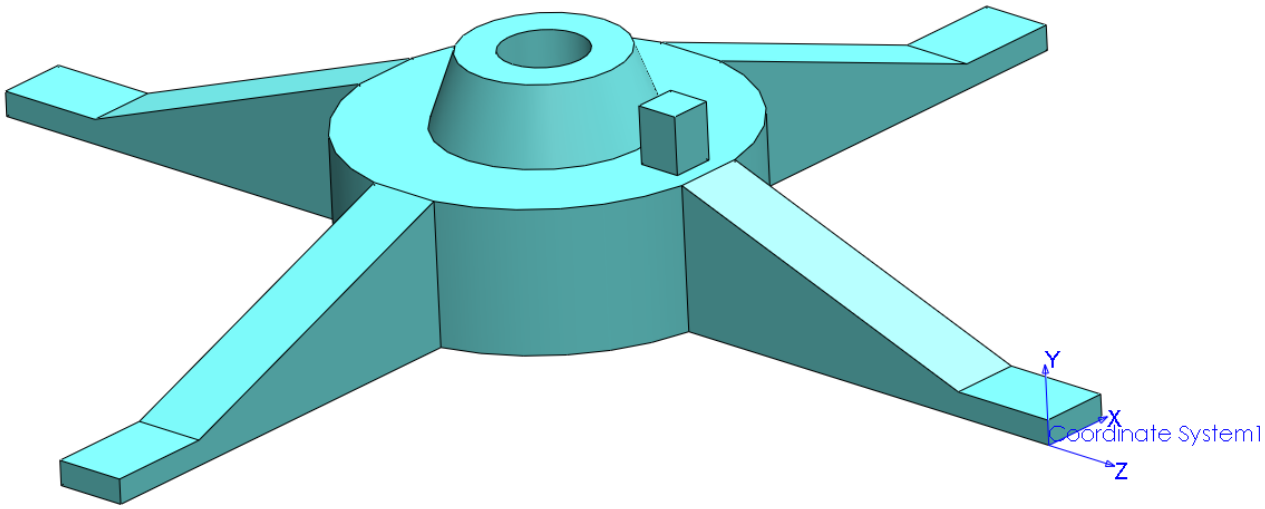
Question 2- Create an Assembly

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= 0.00, Y= 9.76, Z= 0.08**
b. **X= -5.00, Y= 9.76, Z= 87.42**
c. **X= 5.00, Y= 9.76, Z= -87.42**
d. **X= 0.00, Y=9.76, Z= -0.08**

3A- Create a new part: Arm

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

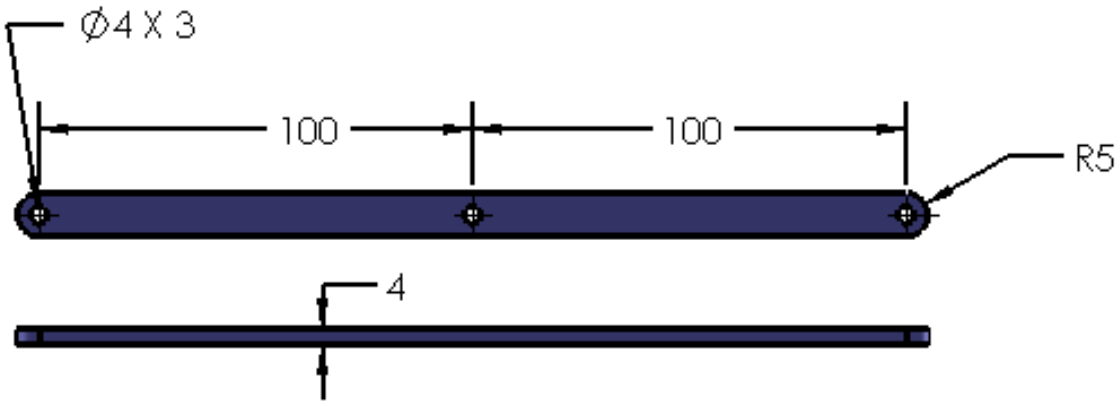
Material: 1060 Alloy

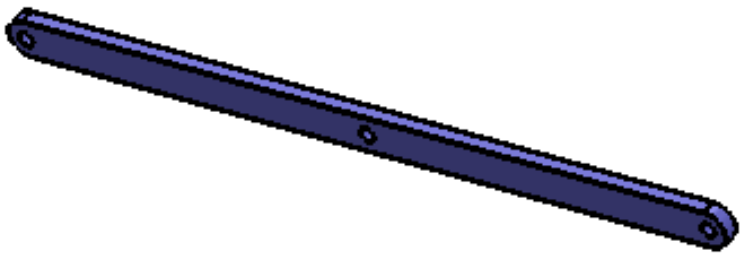
Density: 2700 kg/m^3

Part Origin: Arbitrary

-Create the following part, name it Arm.sldprt (referenced in question 9)

-Hint: creating a reference point at the center of the center through hole will make creating mates easier in subsequent parts





This part will be used in the following questions.

Question 3- Create a new assembly

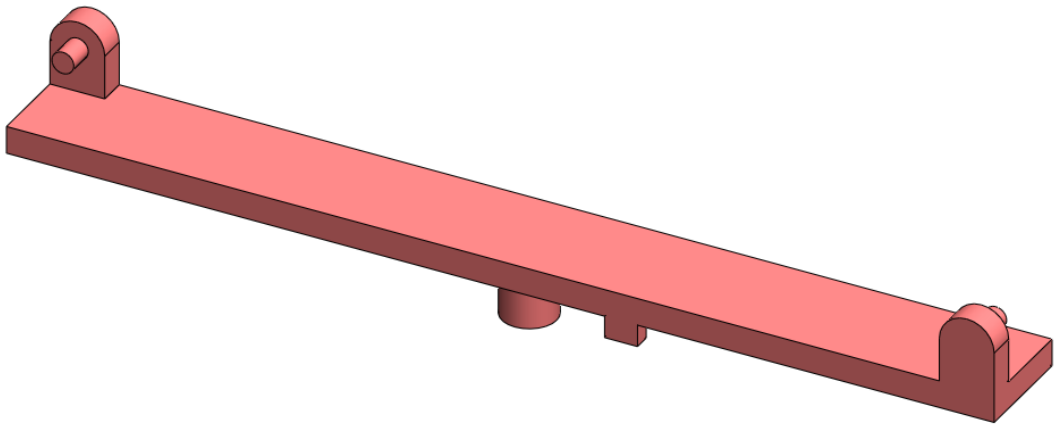
Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

-Create a new assembly and add in Pivot.sldprt

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

-The new assembly will be referred to as “Pivot.sldasm”



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

_____

Question 4-Adding Parts

Unit System: MMGS (millimeter, gram, second)

Decimal Places: 2

-Add Arm.sldprt and Arm_slot.sldprt as shown below

-Create the appropriate mates as shown. (images continue onto next page)

-The center through hole of “Arm” is centered on the slot from “Arm_slot”

-Hint: Mate a point in the middle of the center through hole to a plane that passes through the slot

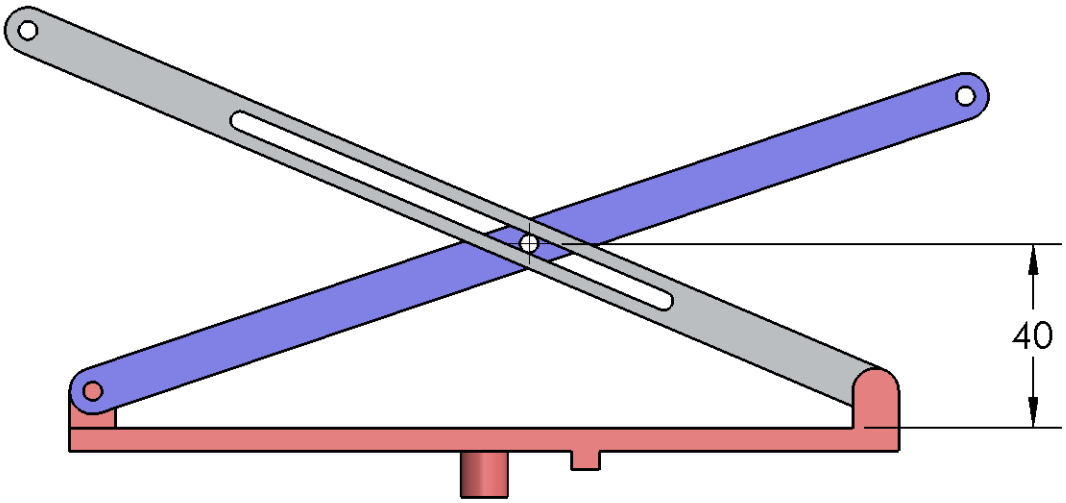
What is the mass of Pivot.sldasm (grams)?

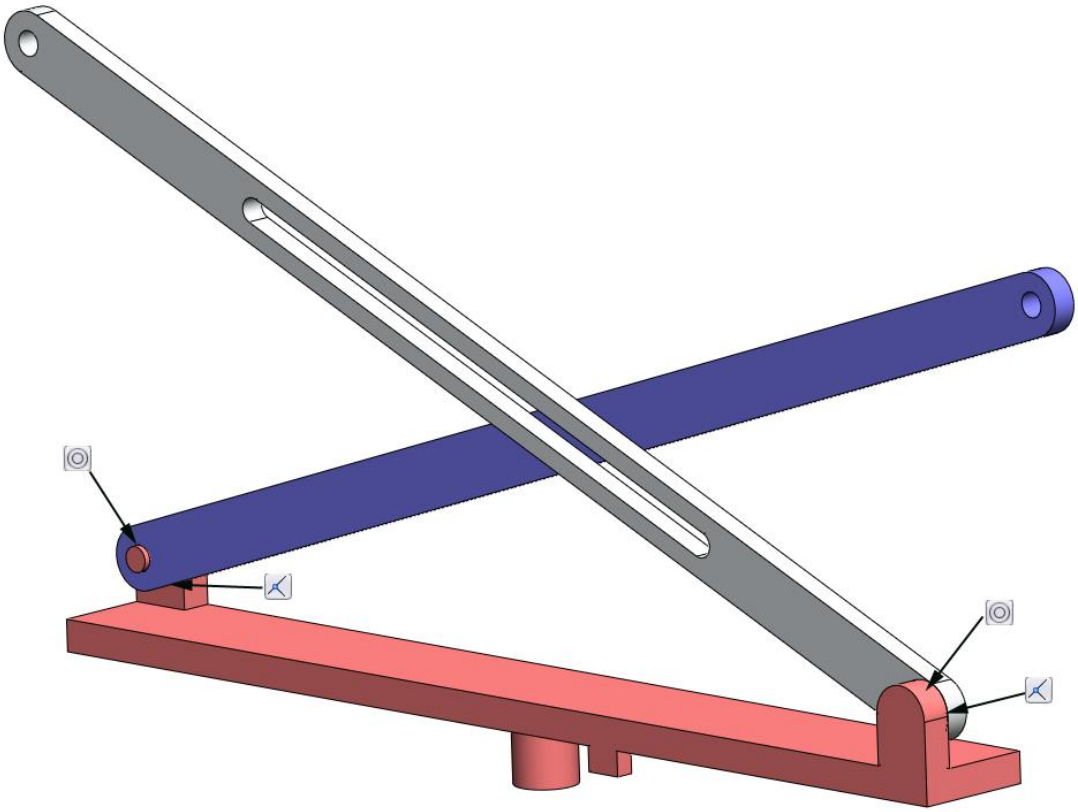
a. 94.24

b. 80.36

c. 63.25

d. 114.93





Question 5- Adding a Subassembly

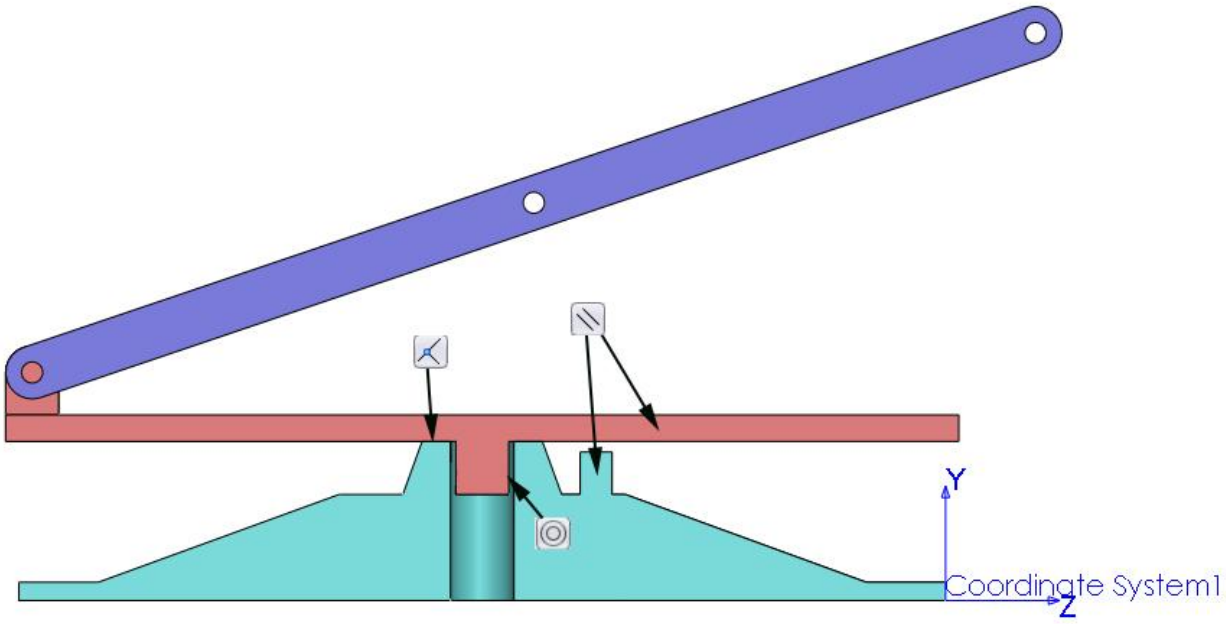
Unit System: MMGS (millimeter, gram, second)

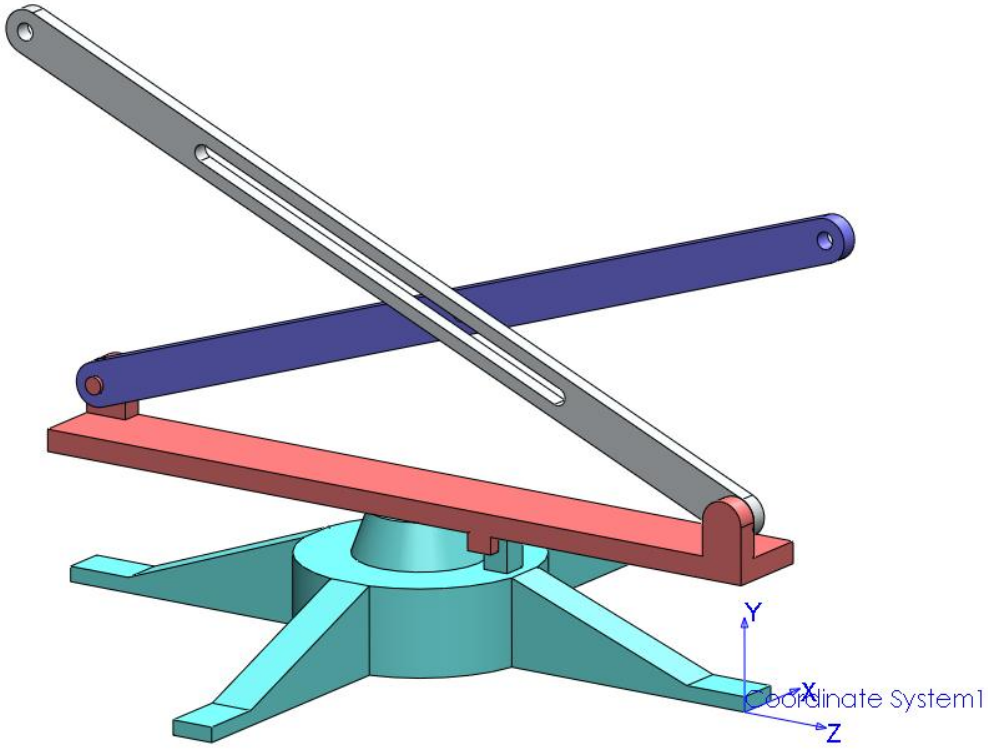
Decimal Places: 2

Use Coordinate System 1

-Add pivot.sldasm to the orginal assembly created in question 2 as shown below

-No modifications to Pivot.sldasm should be made





What is the center of mass of the assembly?

a. **X=6.35, Y=16.28, Z= -90.42**
b. **X=5.02, Y=15.81, Z= -87.28**
c. **X= -5.02, Y= 14.61, Z= -53.26**
d. **X= 4.35, Y=15.81, Z= -68.73**

Question 6-Collision Detection

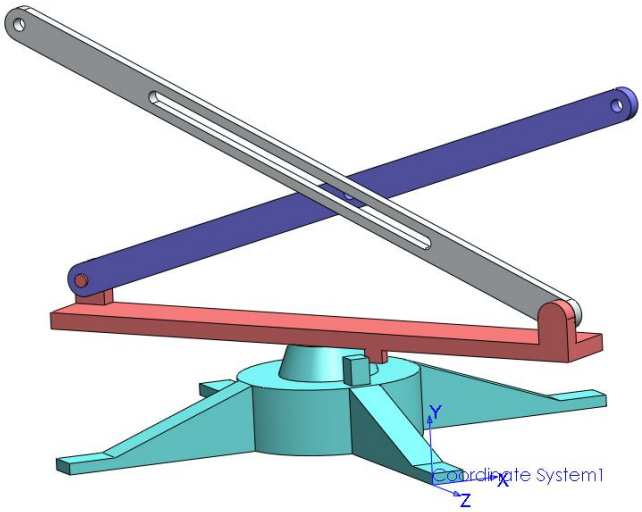
Unit System: MMGS (millimeter, gram, second)

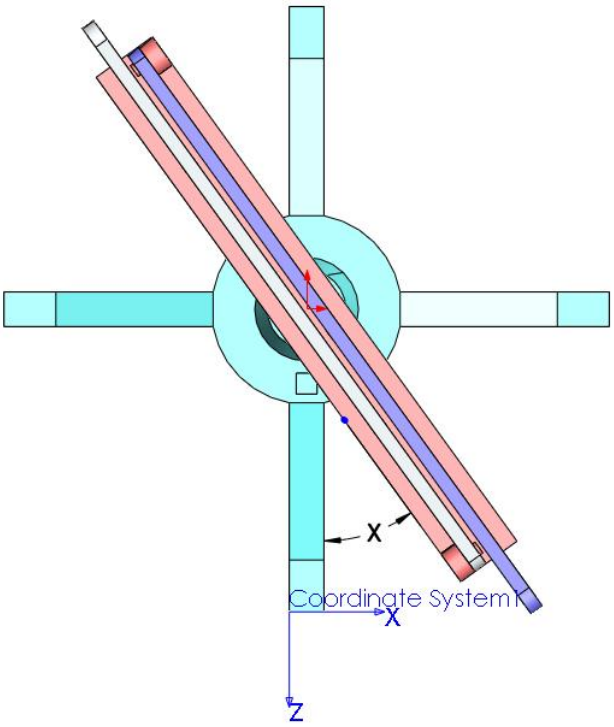
Decimal Places: 2

-Suppress the parallel relationship from question 5

-Rotate the assembly as shown.

-Use Collision Detection with “stop at collision” turned on





What is the angle indicated by “X”?

_____

Question 7- Additional Parts

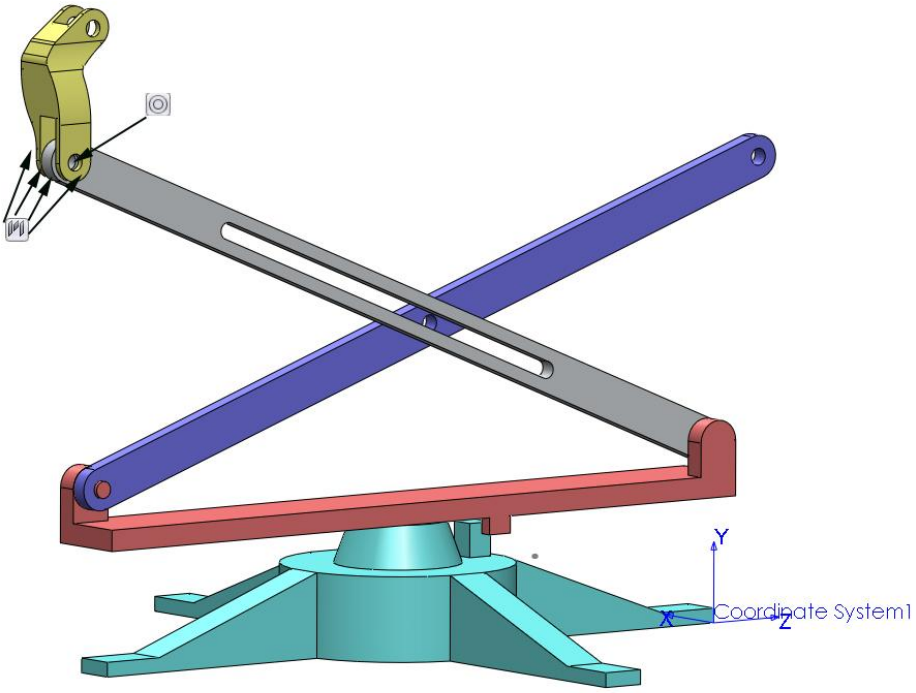
Unit System: MMGS (millimeter, gram, second)

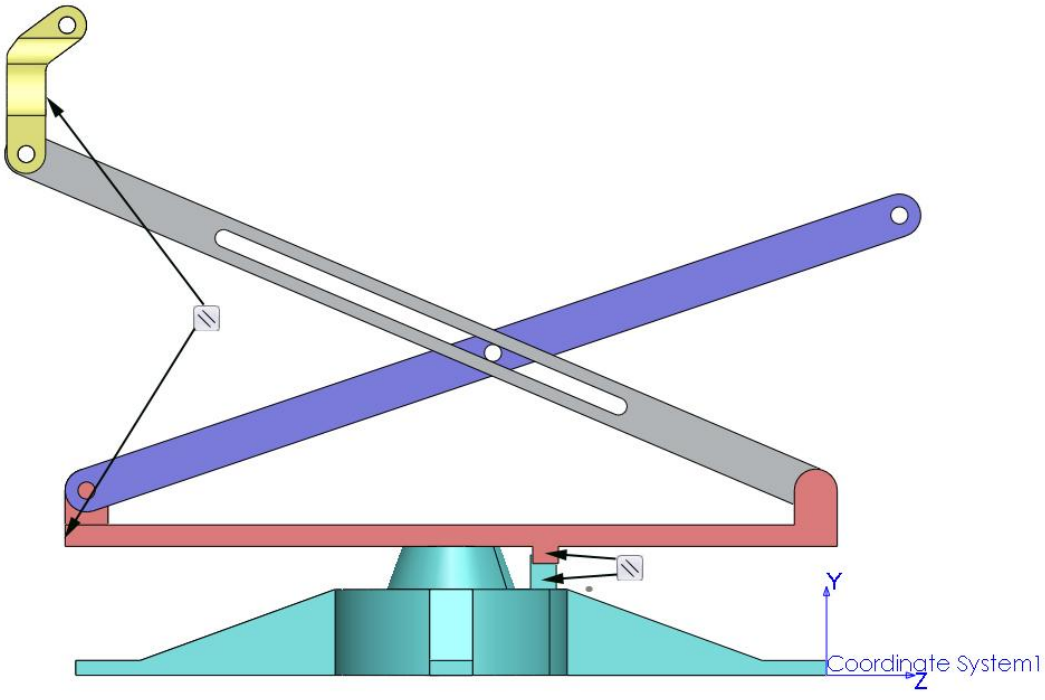
Decimal Places: 2

-Add bracket.sldprt to the assembly as shown

-Add the necessary mates

Use Coordinate System 1





What is the Center of Mass of the Assembly?

X=

Y=

Z=

Question 8- Add Damper

Unit System: MMGS (millimeter, gram, second)

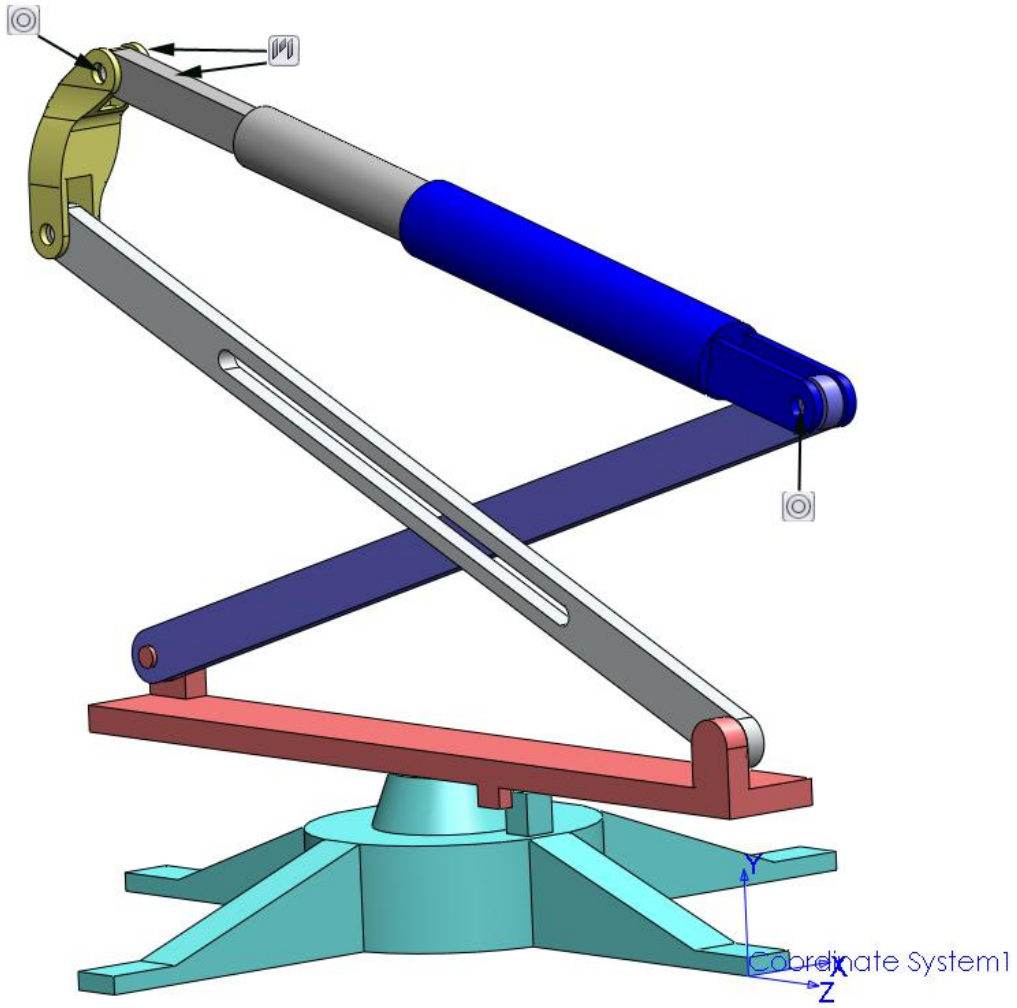
Decimal Places: 2

Use Coordinate System 1

-Add damper.sldasm to the assembly as shown

-Make damper.sldasm a flexible sub-assembly so that the mates can be properly added

-Retain Mates from the previous question



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

X=

Y=

Z=

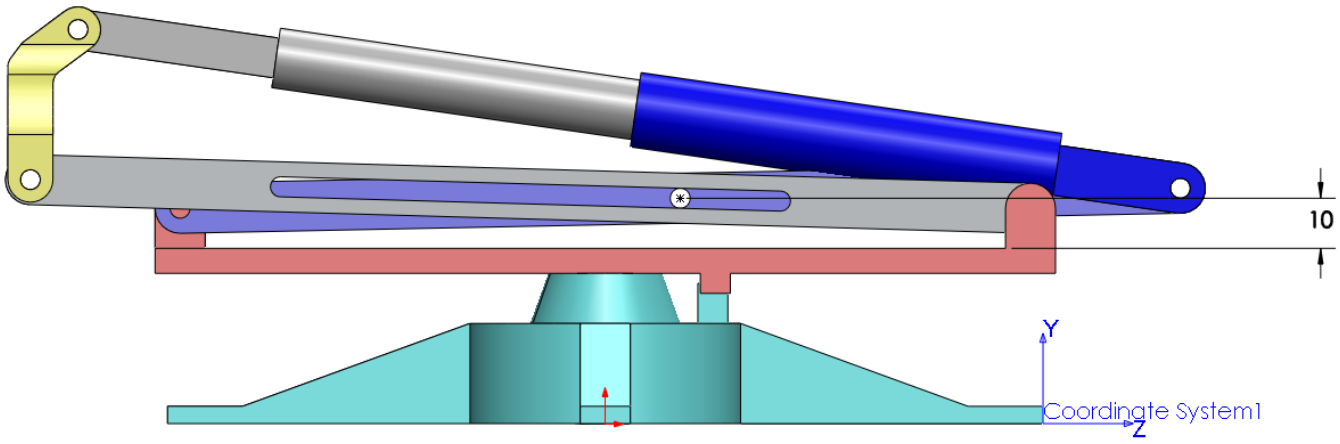
Question 9- Interference Detection

Decimal Places: 2

-Change the distance between the arm and the pivot as shown

-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

__Arm_Slot

__Base

__Bracket

__Housing

__Piston

__Pivot

Question 10- Replace Components

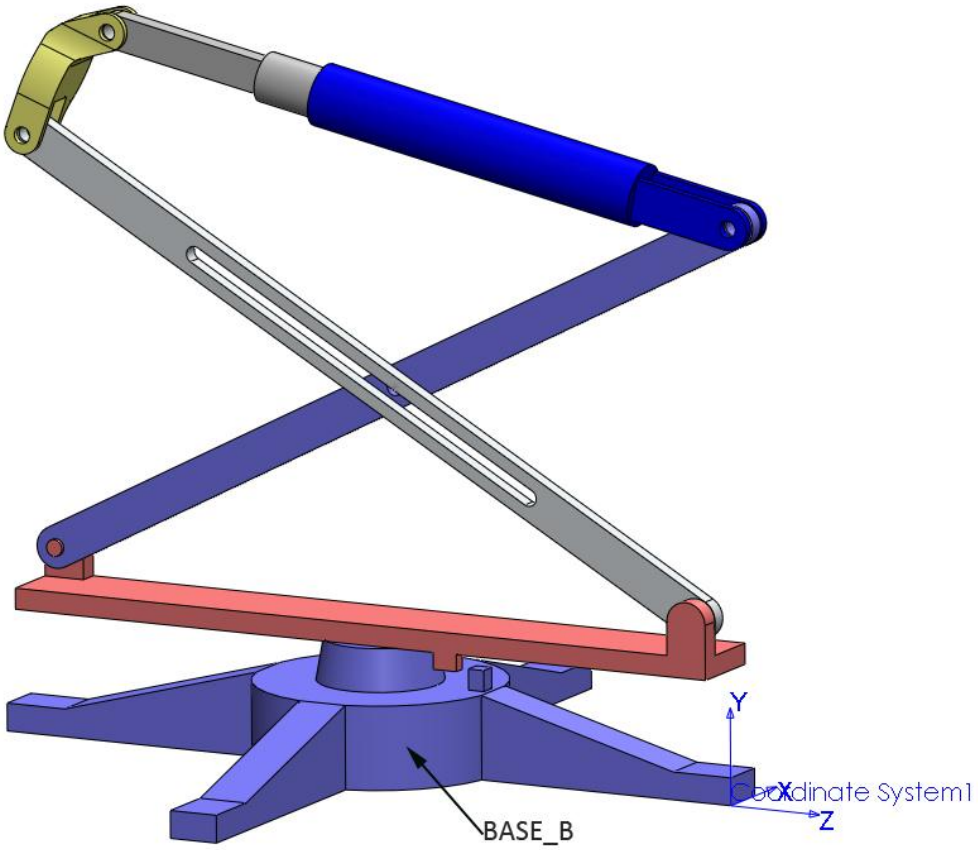
Unit System: MMGS (millimeter, gram, second)

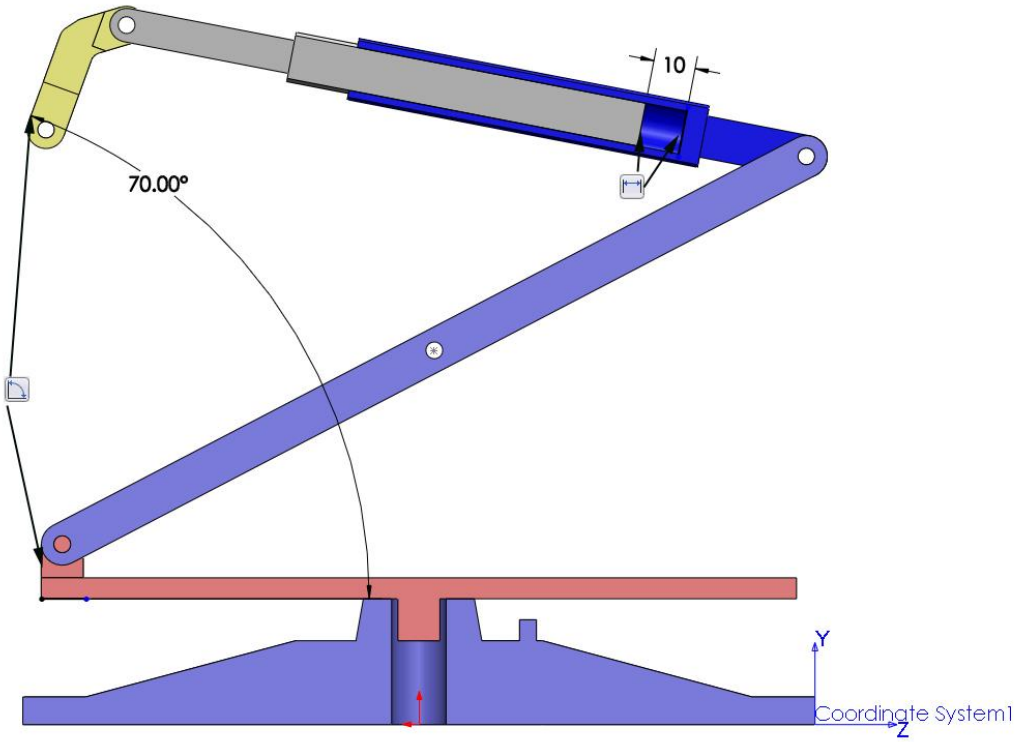
Decimal Places: 2

-Replace base.sldprt with Base_B.sldprt

-Delete or suppress any distance mates in pivot.sldasm and make this a flexible subassembly

-Modify mates and set parameters as indicated below





What is the center of mass of the assembly?

X=

Y=

Z=