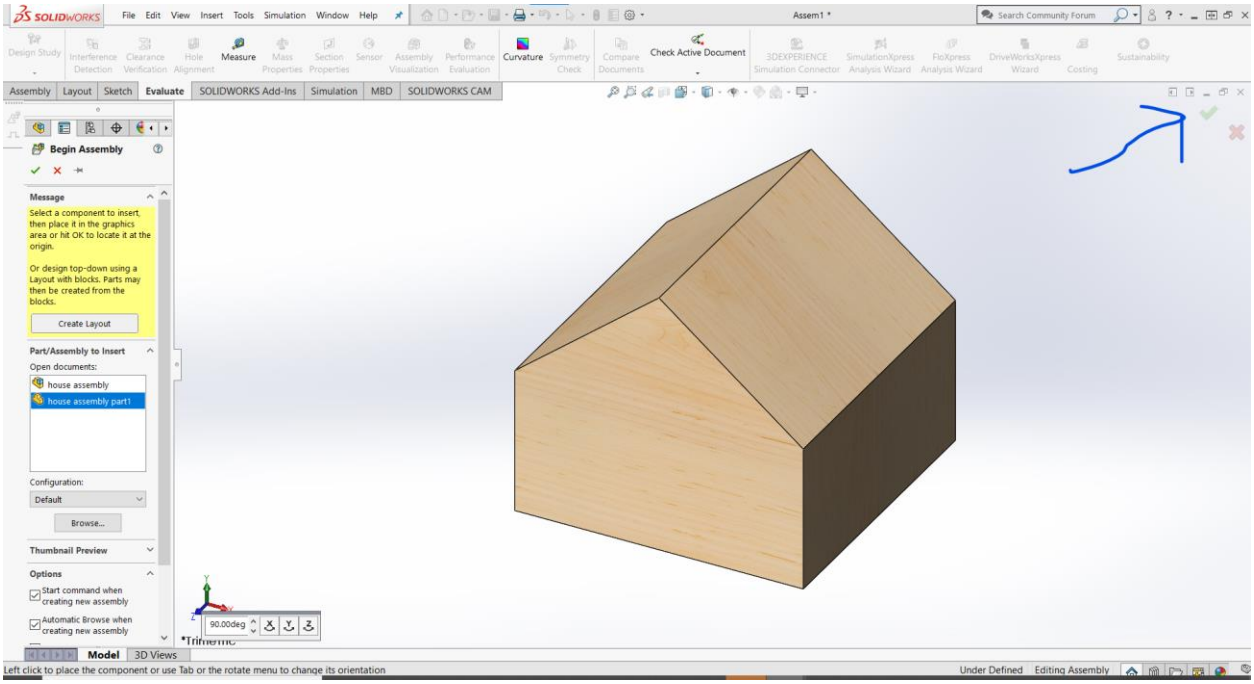
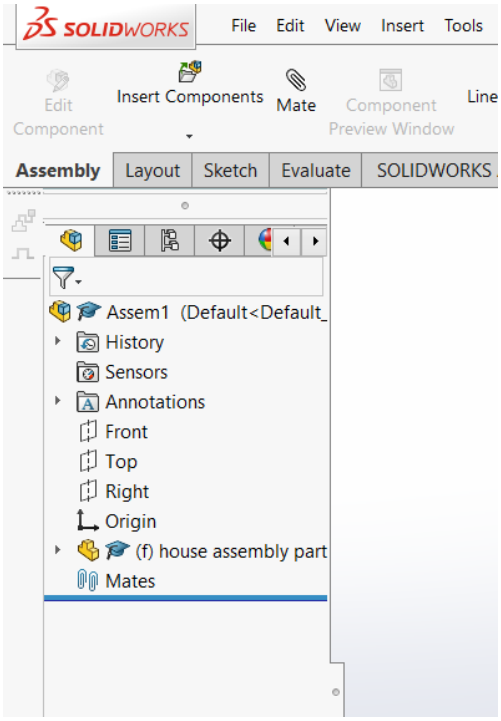
Unit System: MMGS

Start by creating a new assembly.

Select house assembly part 1 and **then click the green check mark in the right hand corner.** This will make the center of mass consistent with the quiz, if you don't do this you will get an incorrect answer.



Next hit insert component in the left corner

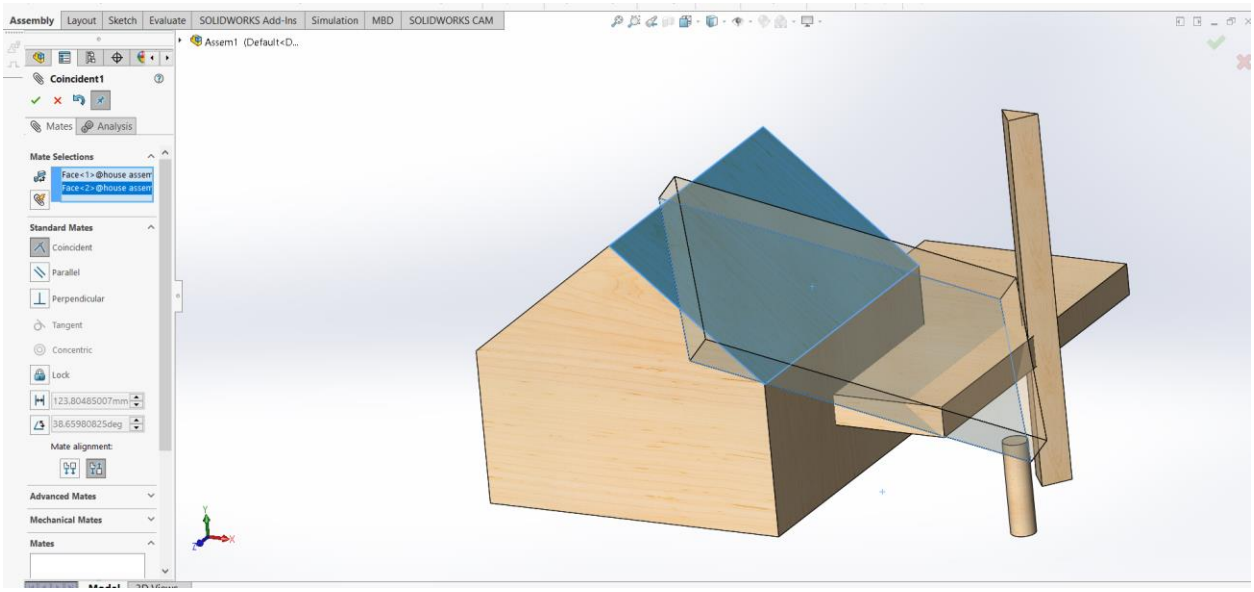


You can at this point insert all the components to the house.

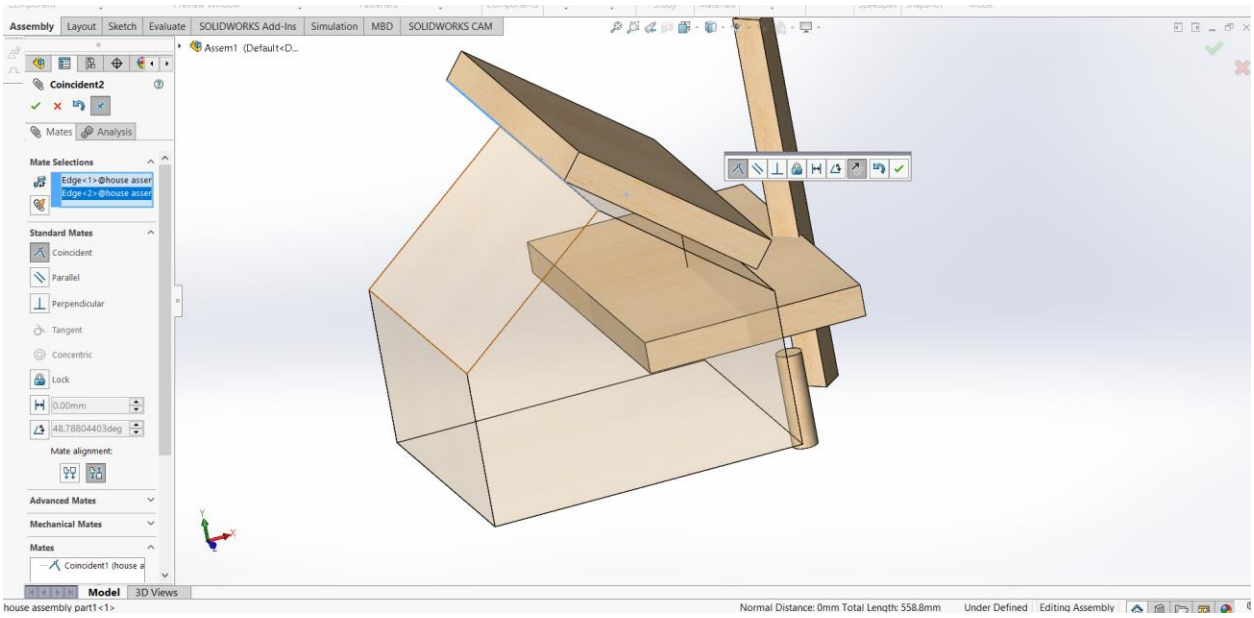
This assembly needs:
1x house assembly part 1
2x house assembly part 2
1x house assembly part 3
1x house assembly part 4

To attach the different components select the mate button next to the insert component button.

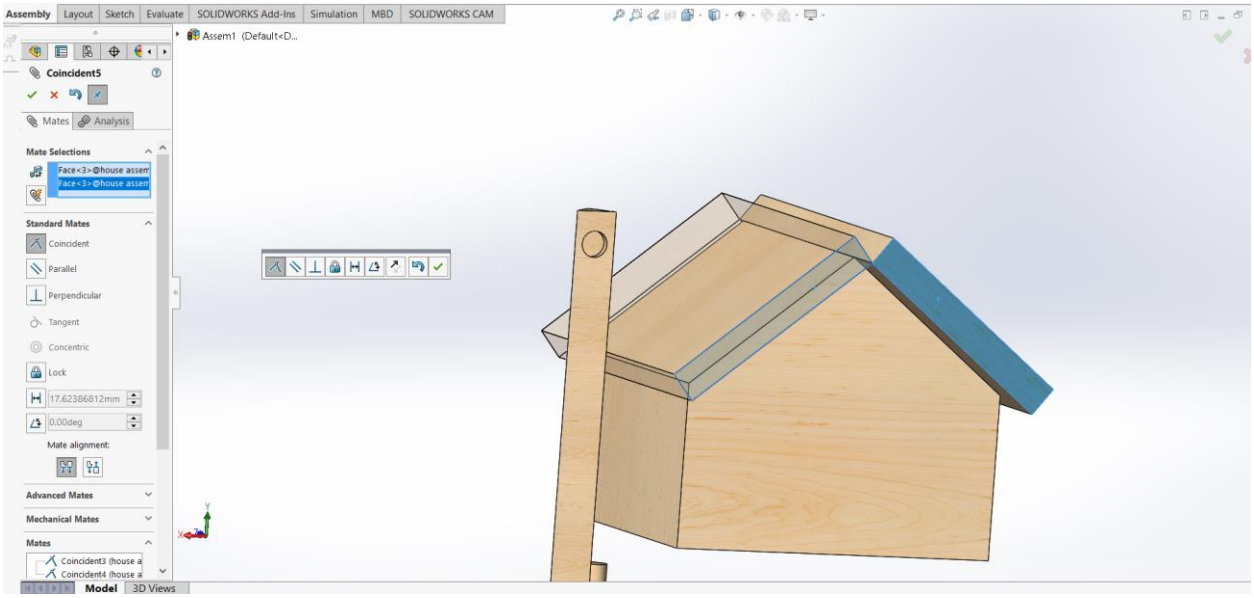
Use coincident mates between the faces of the roof and the top of the house, note that on the menu where the type of mate is selected you can reverse the orientation of the part if it is oriented the wrong way.



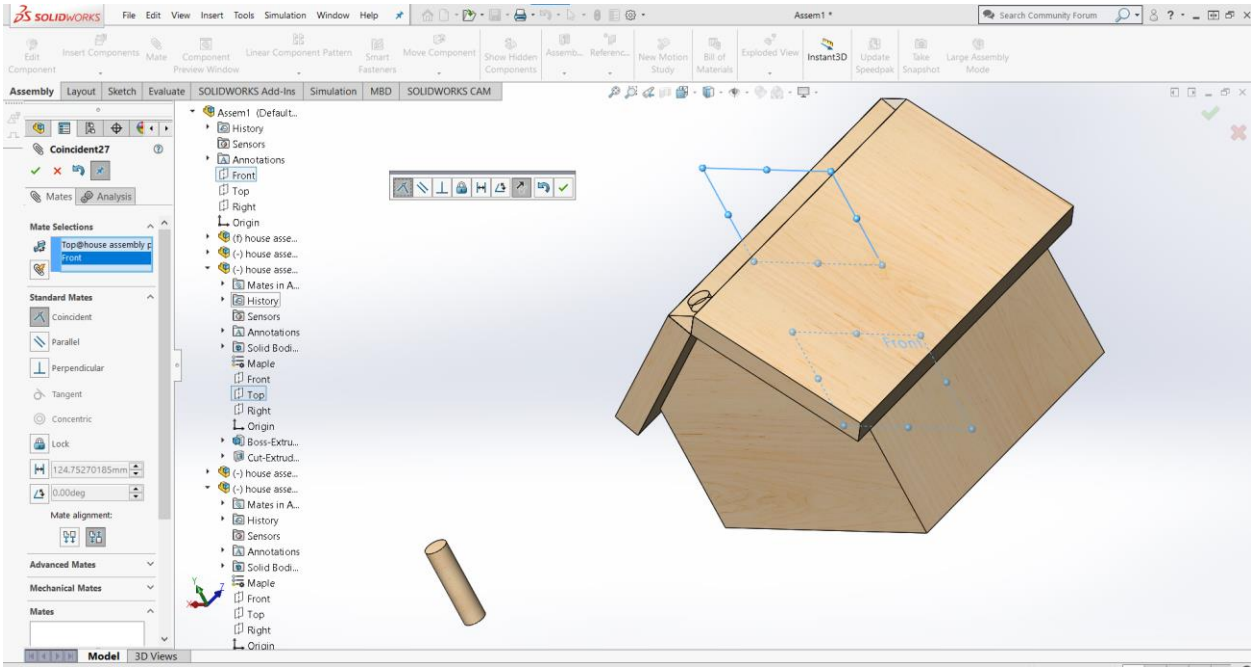
We can again use coincident mates between the top of the house and the roof



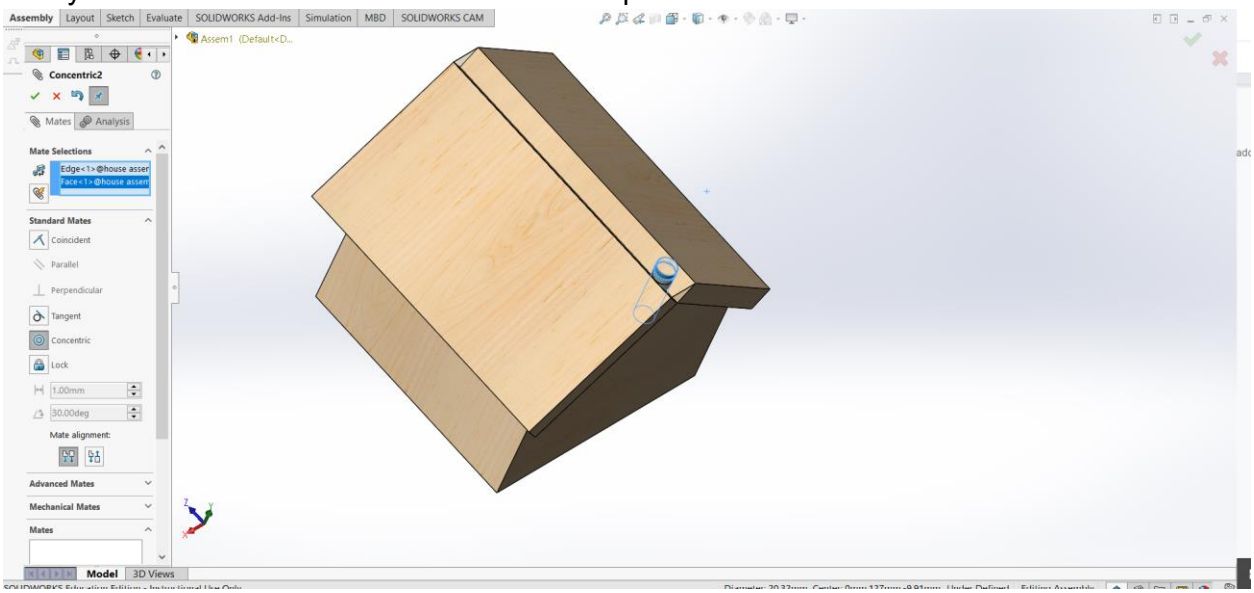
Repeat the process on the other side of the roof and then mate the two sides together



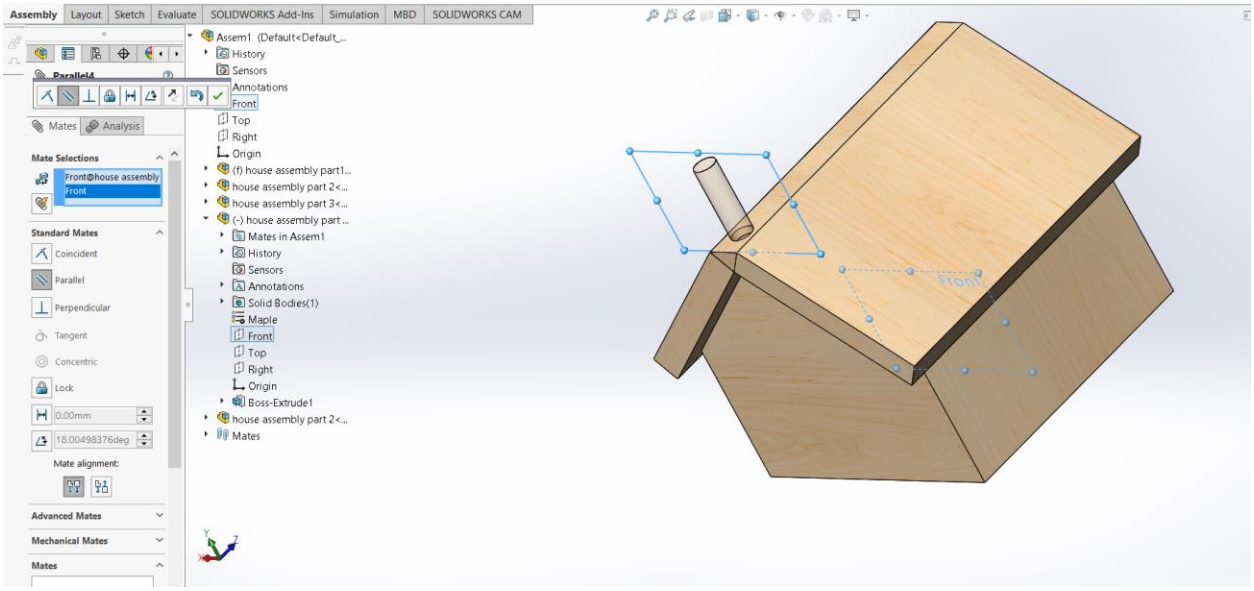
Mate the centerpiece (house assembly part 3) to the roof sides. Then mate the center plane of the centerpiece to the center plane of the assembly. This can be done by using the drop down menu, select the front plane of the assembly then go to house assembly part 3 click the drop down box and select the top plane.



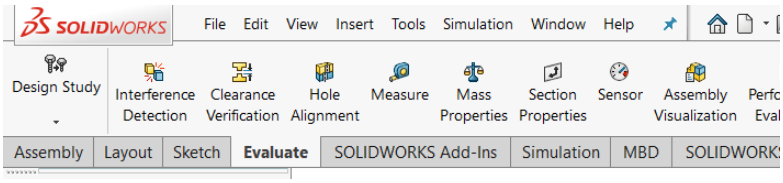
Use a concentric mate to attach the cylinder to the centerpiece and a coincident mate to mate the cylinder's bottom to the bottom of the centerpiece

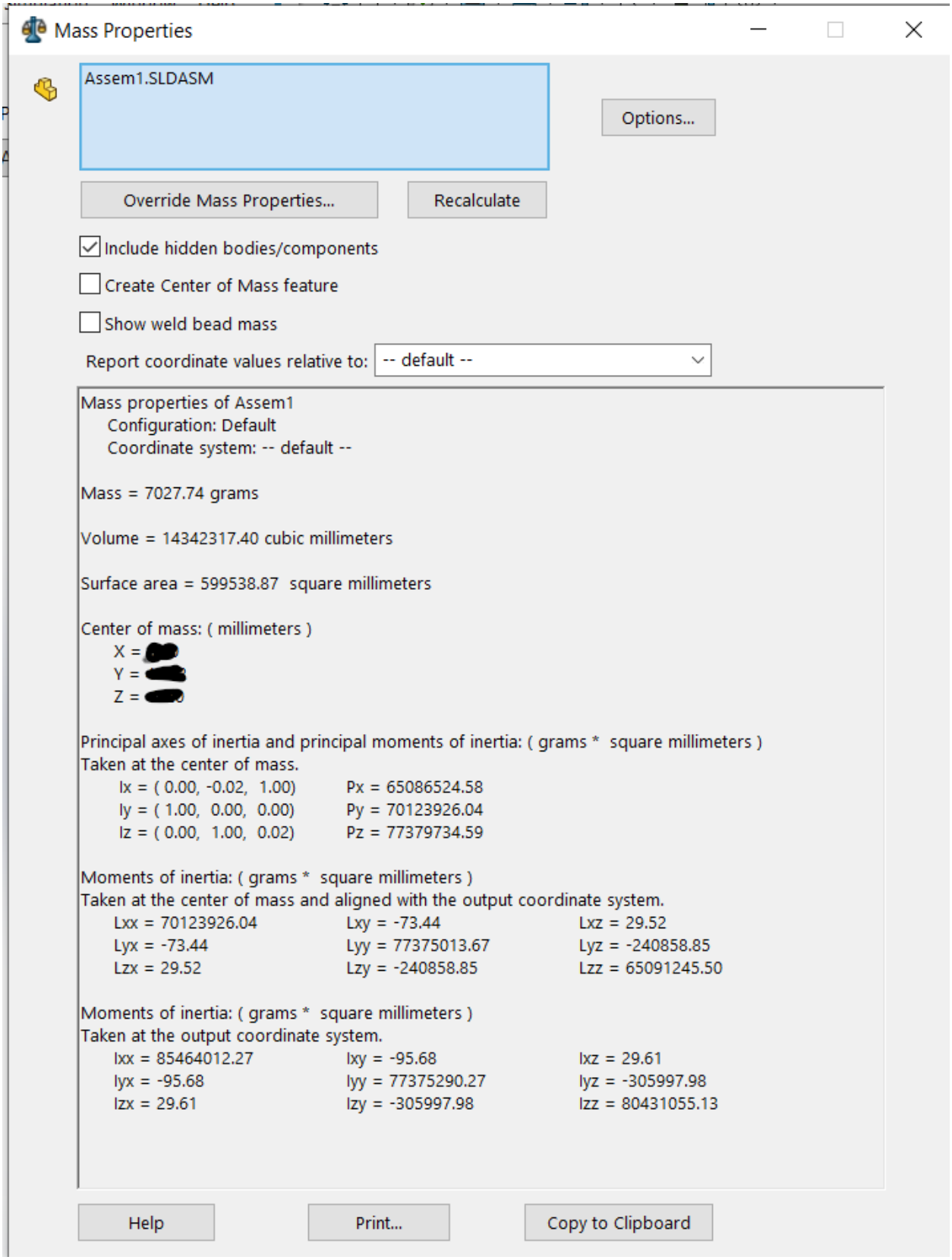


At this point the only part not fully defined is the cylinder. This can be fully defined by mating a plane of the cylinders part to another plane within the assembly. For example using a parallel mate.



Finally go to mass properties and check the center of mass. If you want more practice you can do this assembly again but try using different mates in the assembly, there are a variety of ways this can be assembled and there is no right way.




Mass Properties
Assem1.SLDASM
Options...
Override Mass Properties...
Recalculate
Include hidden bodies/components
Create Center of Mass feature
Show weld bead mass
Report coordinate values relative to: -- default --
Mass properties of Assem1
Configuration: Default
Coordinate system: -- default --
Mass = 7027.74 grams
Volume = 14342317.40 cubic millimeters
Surface area = 599538.87 square millimeters
Center of mass: (millimeters)
X = [redacted]
Y = [redacted]
Z = [redacted]
Principal axes of inertia and principal moments of inertia: (grams * square millimeters)
Taken at the center of mass.
Ix = (0.00, -0.02, 1.00) Px = 65086524.58
Iy = (1.00, 0.00, 0.00) Py = 70123926.04
Iz = (0.00, 1.00, 0.02) Pz = 77379734.59
Moments of inertia: (grams * square millimeters)
Taken at the center of mass and aligned with the output coordinate system.
Lxx = 70123926.04 Lxy = -73.44 Lxz = 29.52
Lyx = -73.44 Lyy = 77375013.67 Lyz = -240858.85
Lzx = 29.52 Lzy = -240858.85 Lzz = 65091245.50
Moments of inertia: (grams * square millimeters)
Taken at the output coordinate system.
Ixx = 85464012.27 Ixy = -95.68 Ixz = 29.61
Iyx = -95.68 Iyy = 77375290.27 Iyz = -305997.98
Izx = 29.61 Izy = -305997.98 Izz = 80431055.13
Help
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