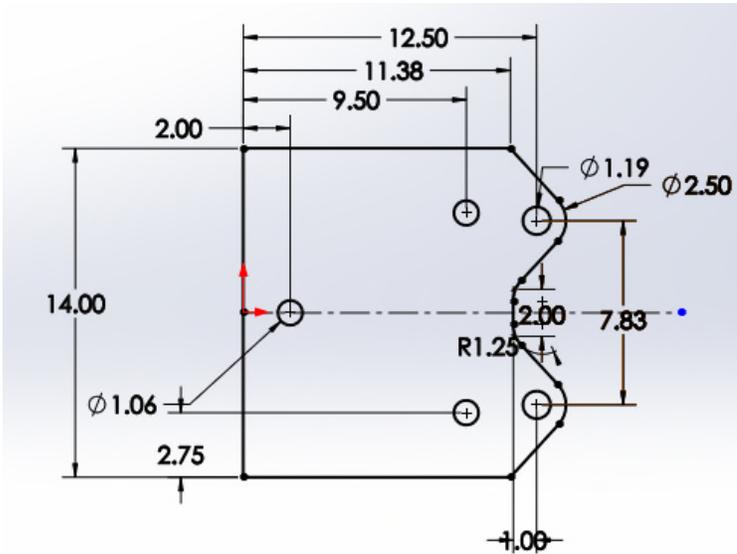
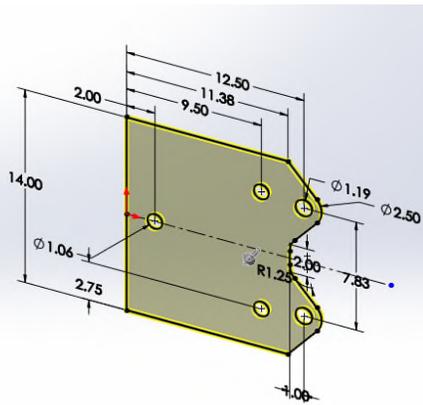
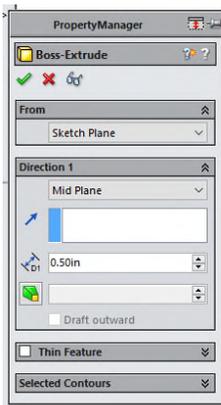


Chapter 2: Geometric Construction Tools

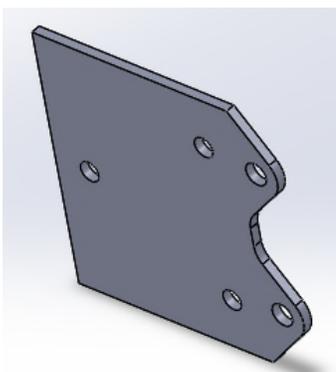
1. Problem 2-1



Step 1

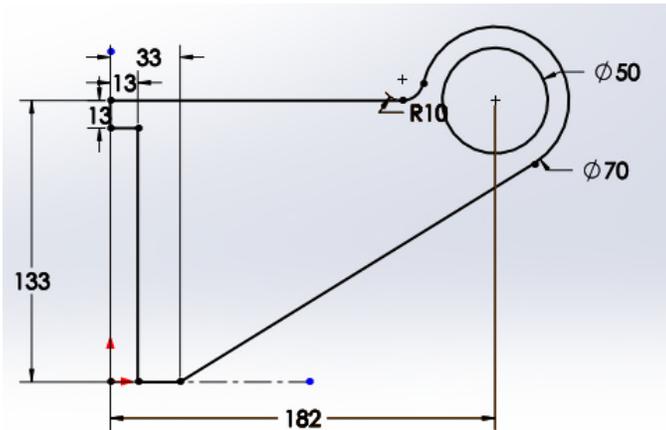


Step 2

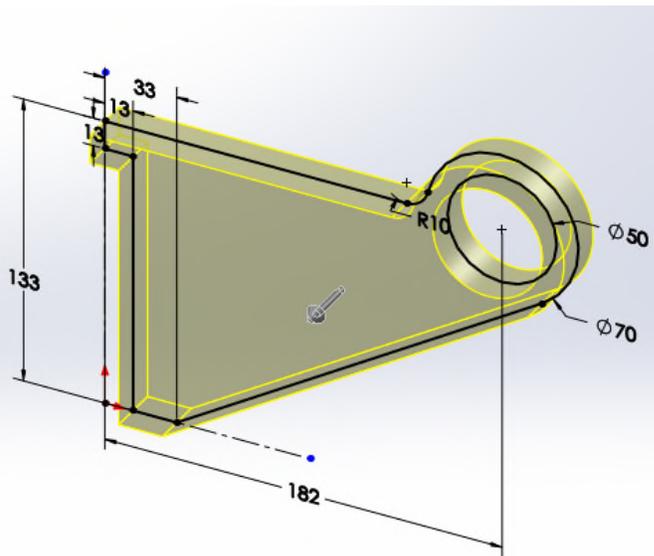
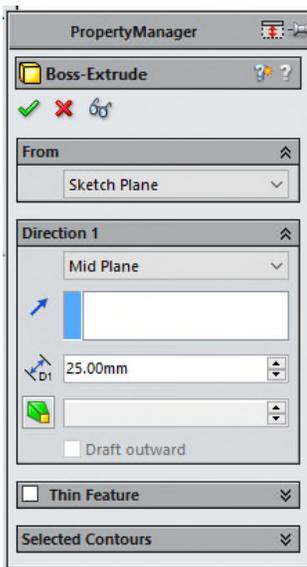


Step 3

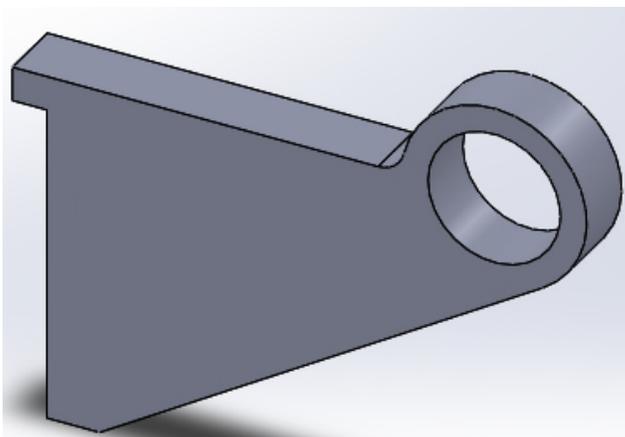
2. Problem 2-2



Step 1

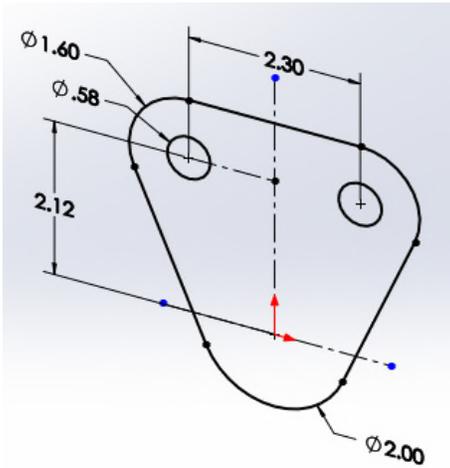


Step 2

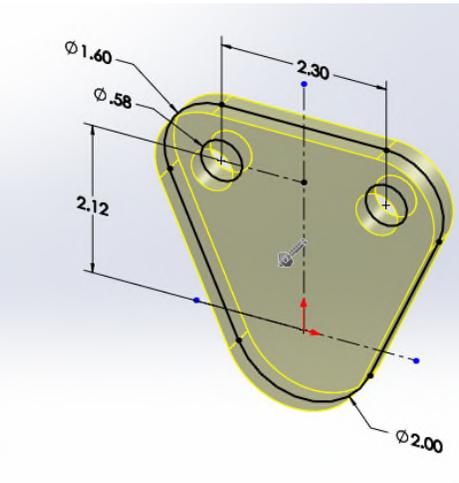
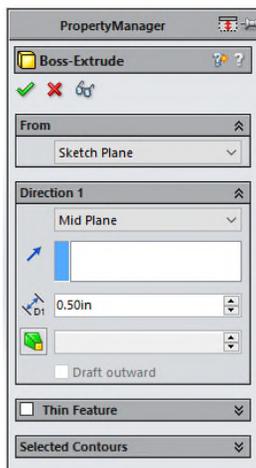


Step 3

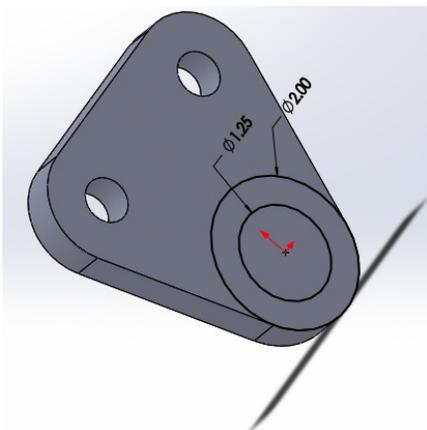
3. Problem 2-3



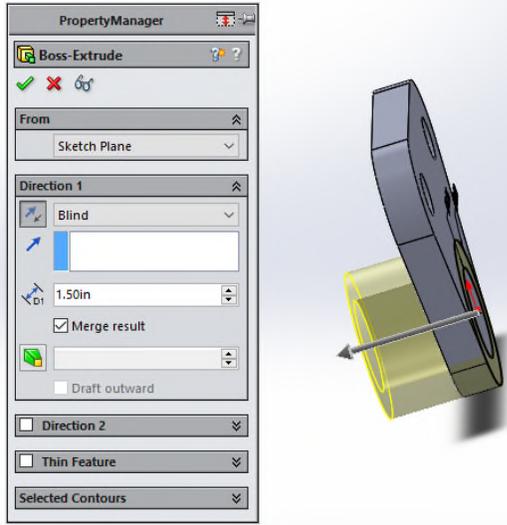
Step 1



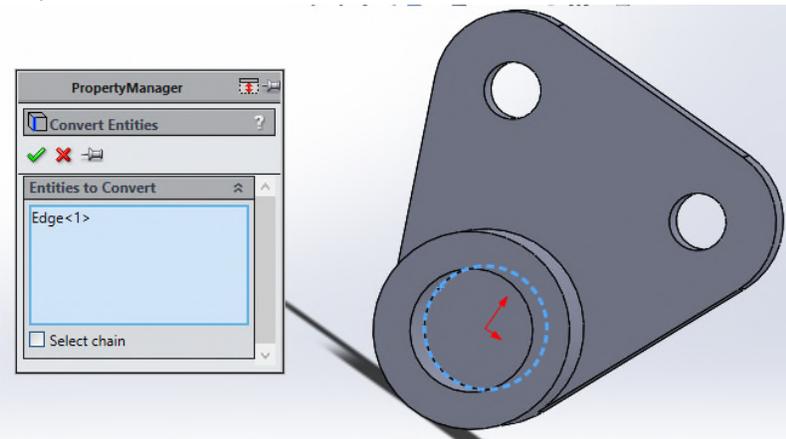
Step 2



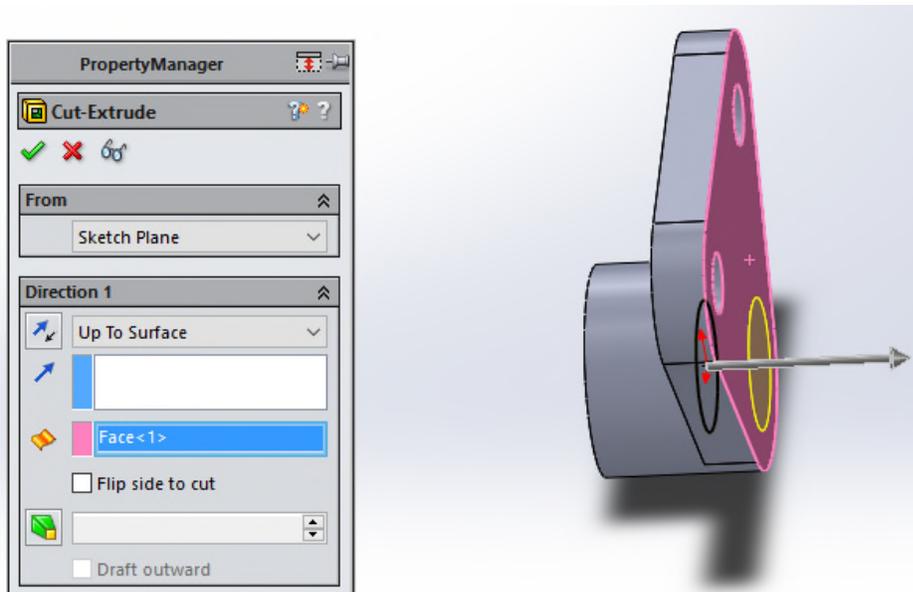
Step 3



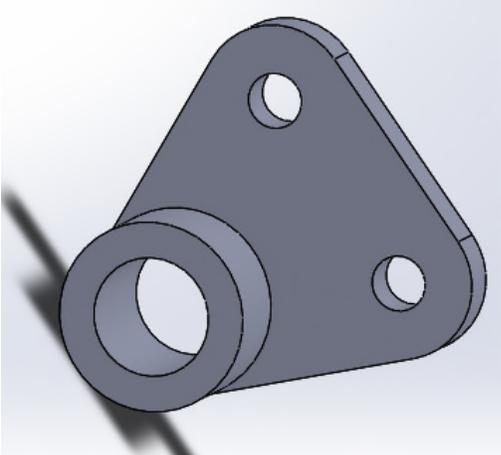
Step 4



Step 5

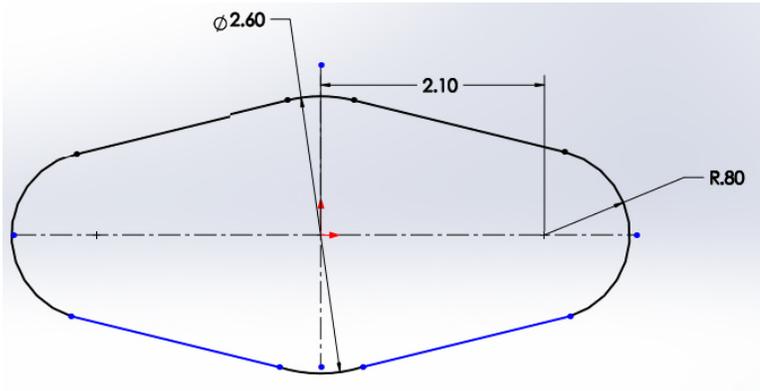


Step 6

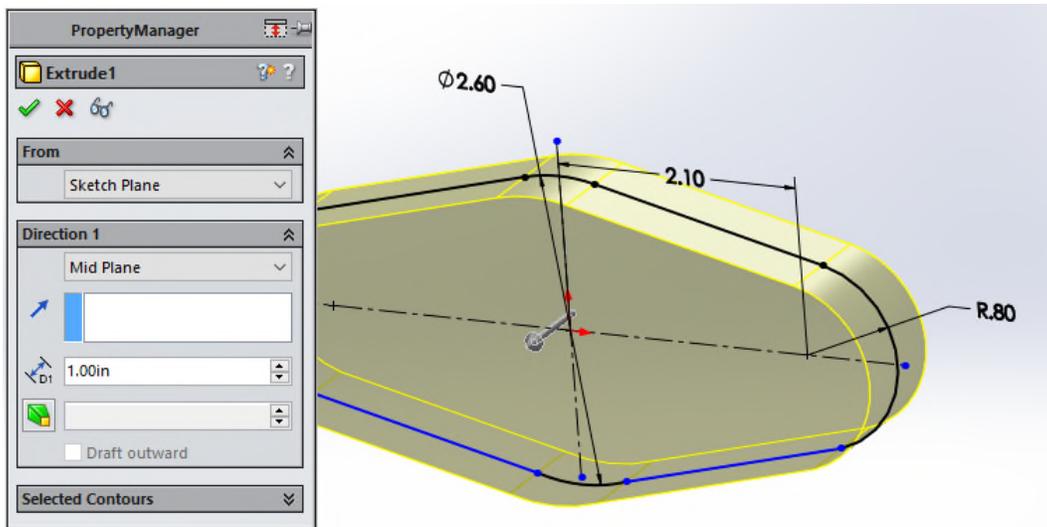


Step 7

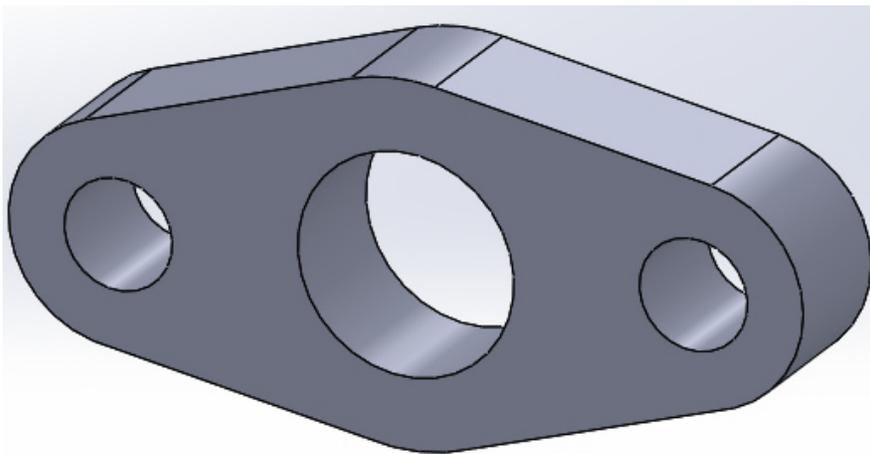
4. Problem 2-4



Step 1

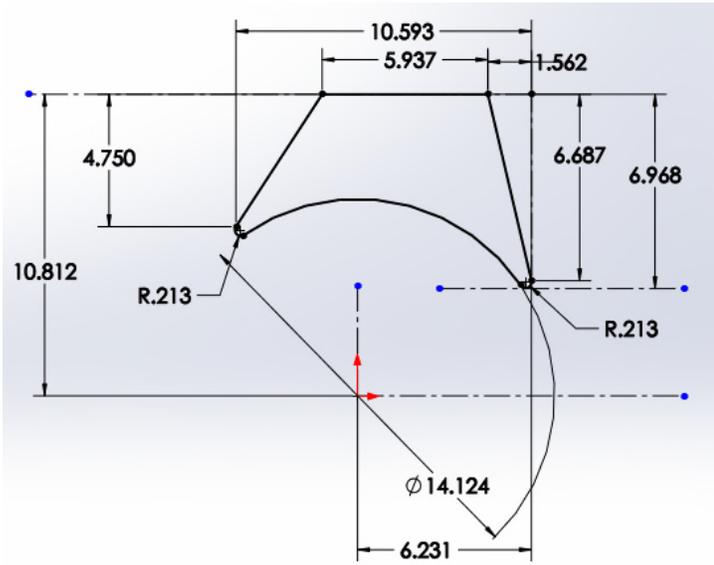


Step 2

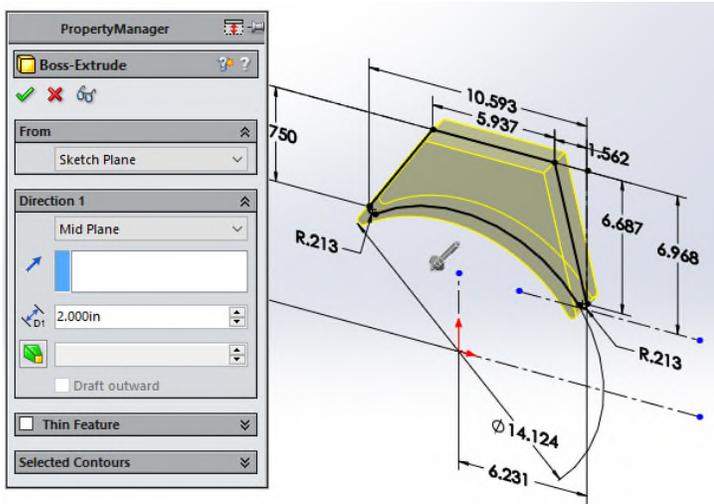


Step 3

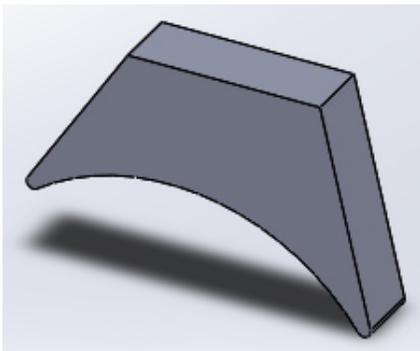
5. Problem 2-5



Step 1

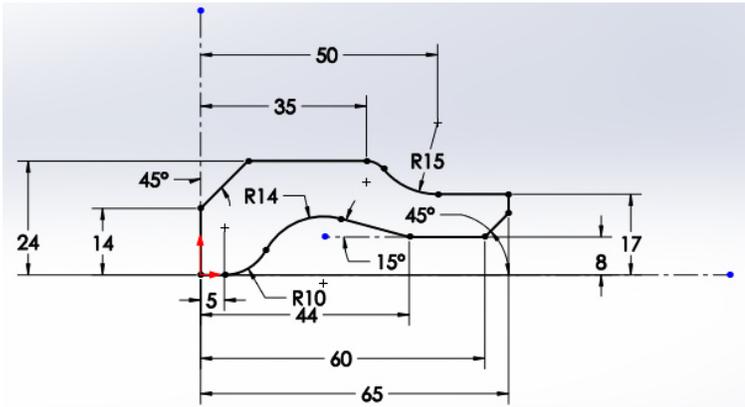


Step 2

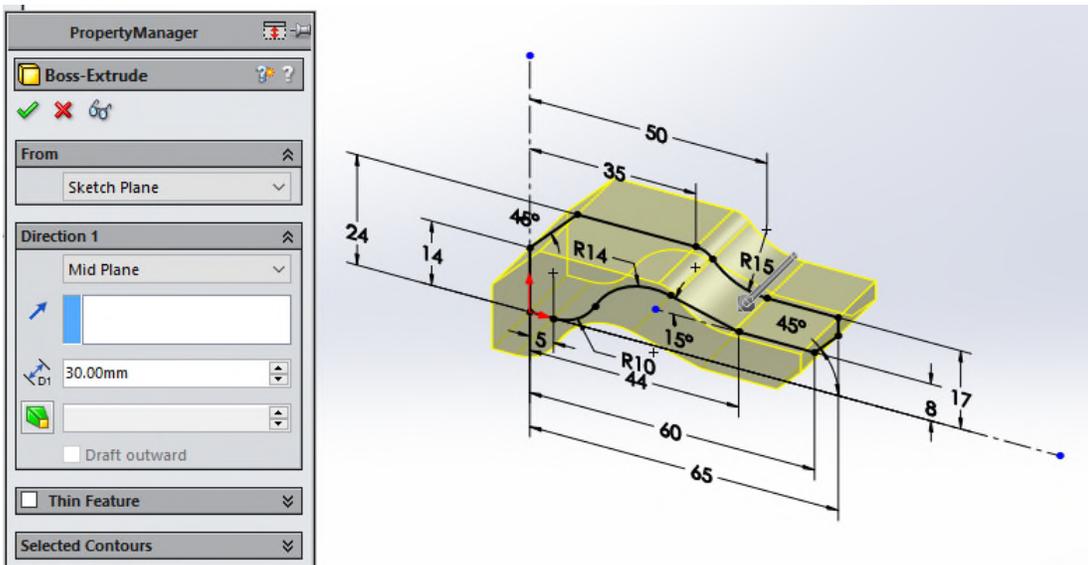


Step 3

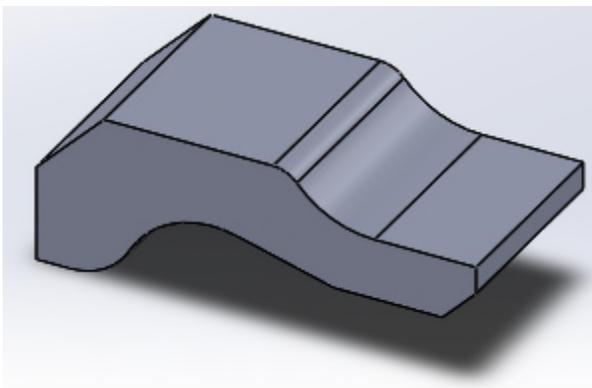
6. Problem 2-6



Step 1

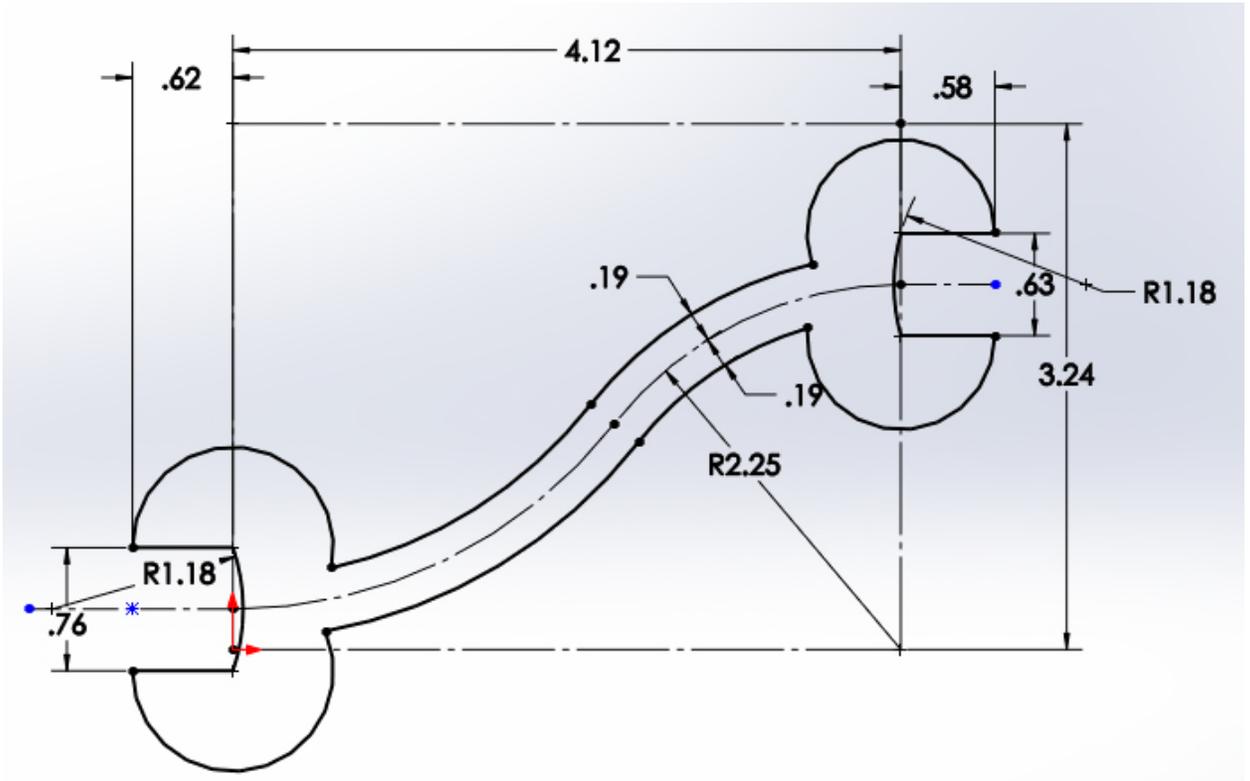


Step 2

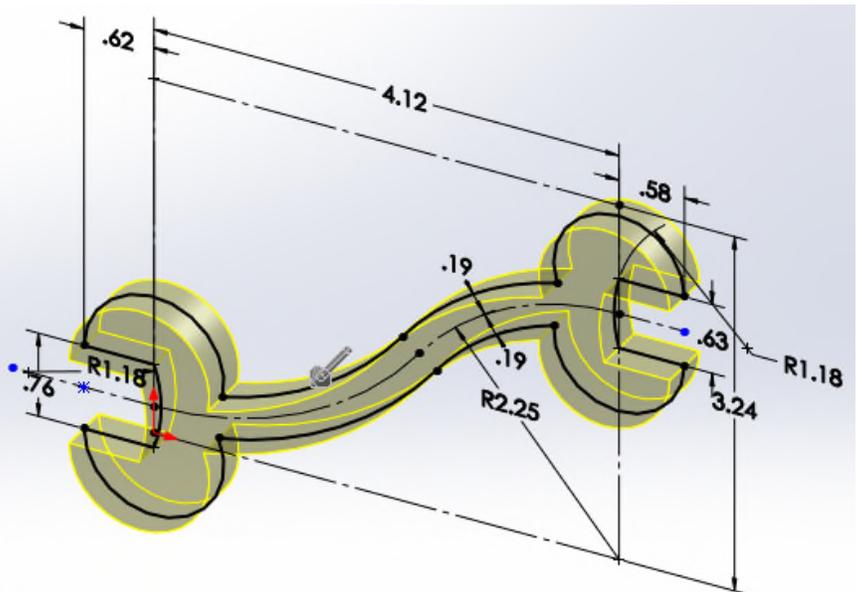
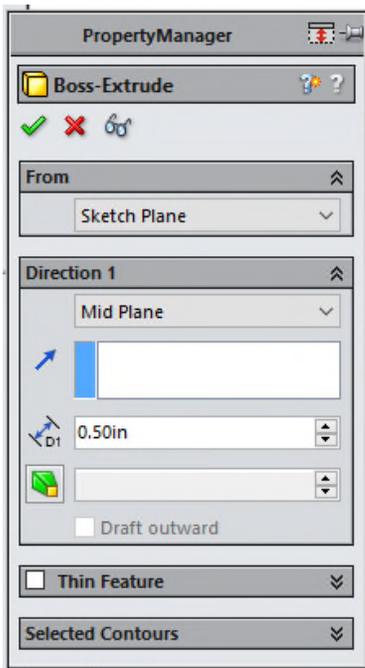


Step 3

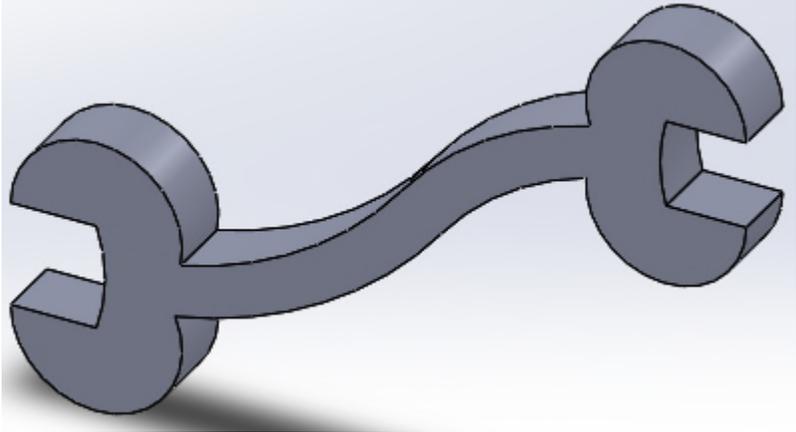
7. Problem 2-7



Step 1

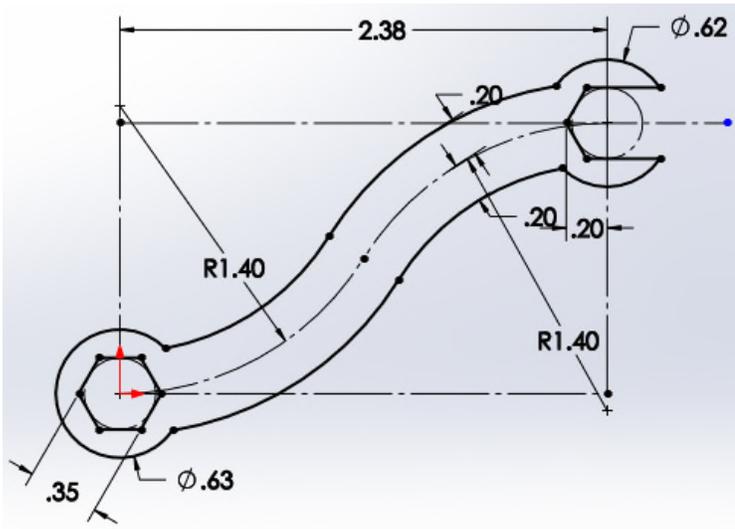


Step 2

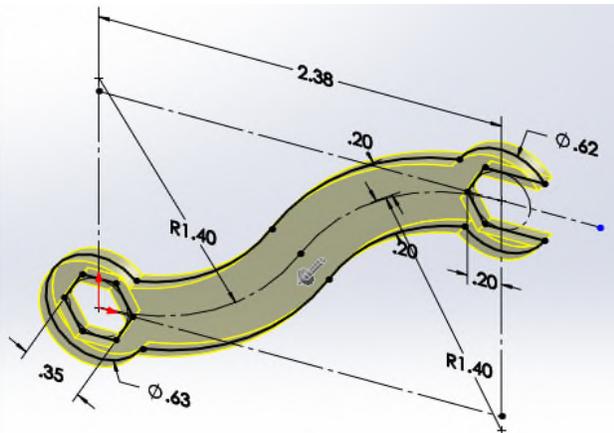
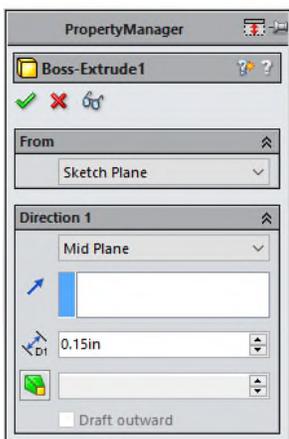


Step 3

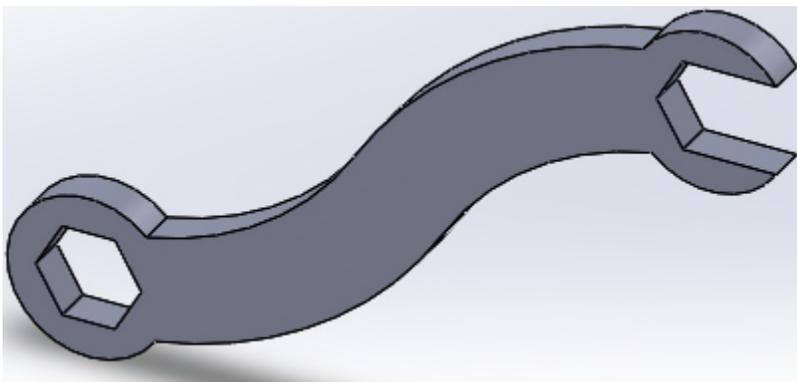
8. Problem 2-8



Step1

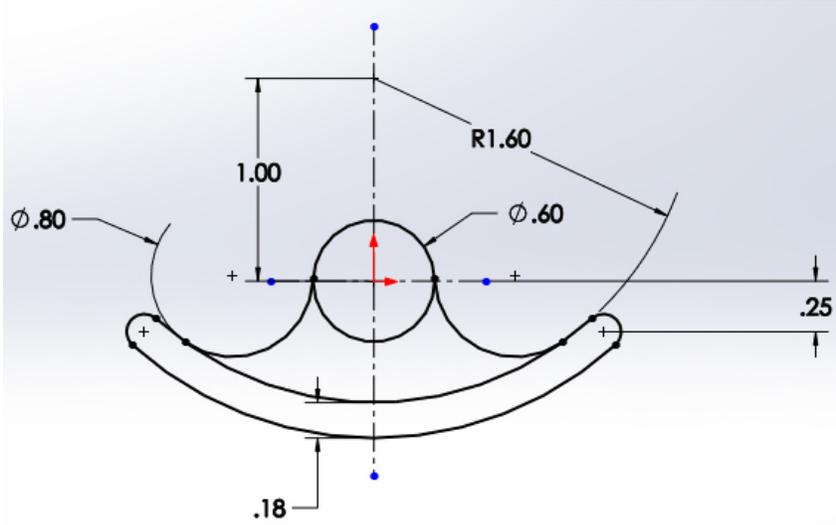


Step 2

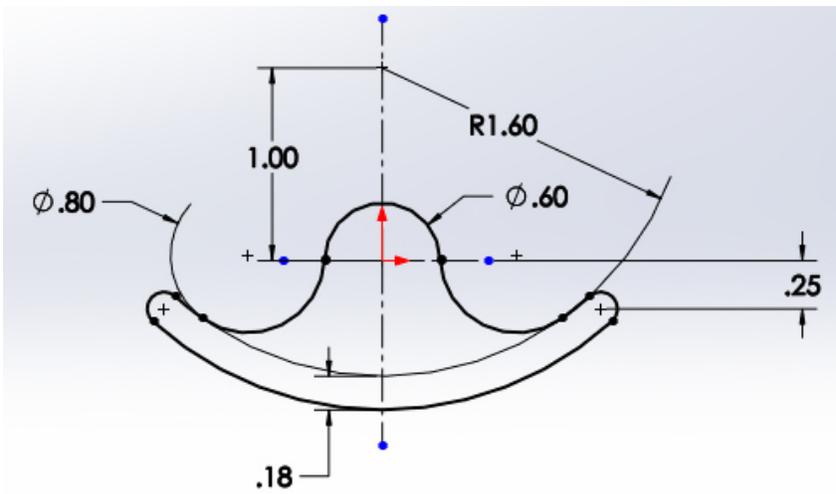


Step 3

9. Problem 2-9

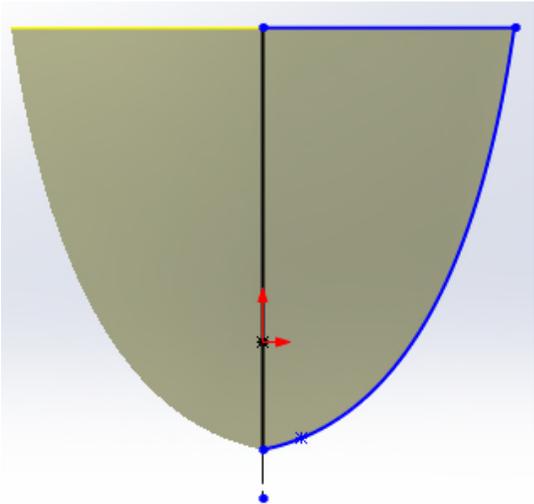


Step 1

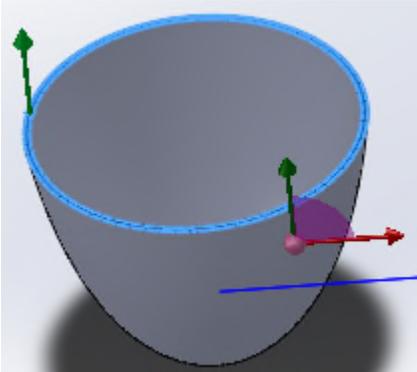


Step 2

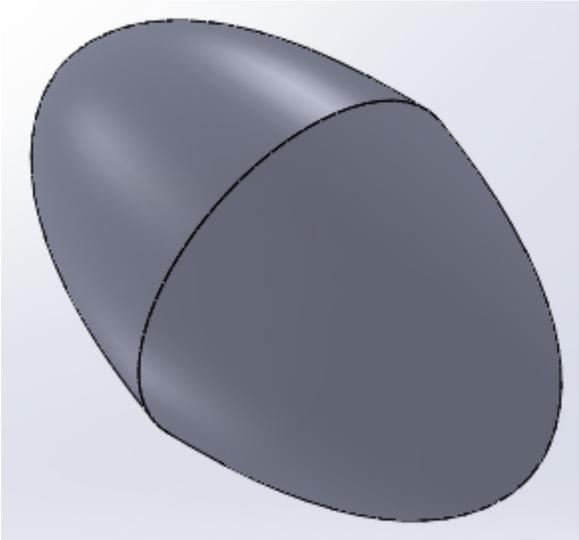
10. Problem 2-10



Step 1

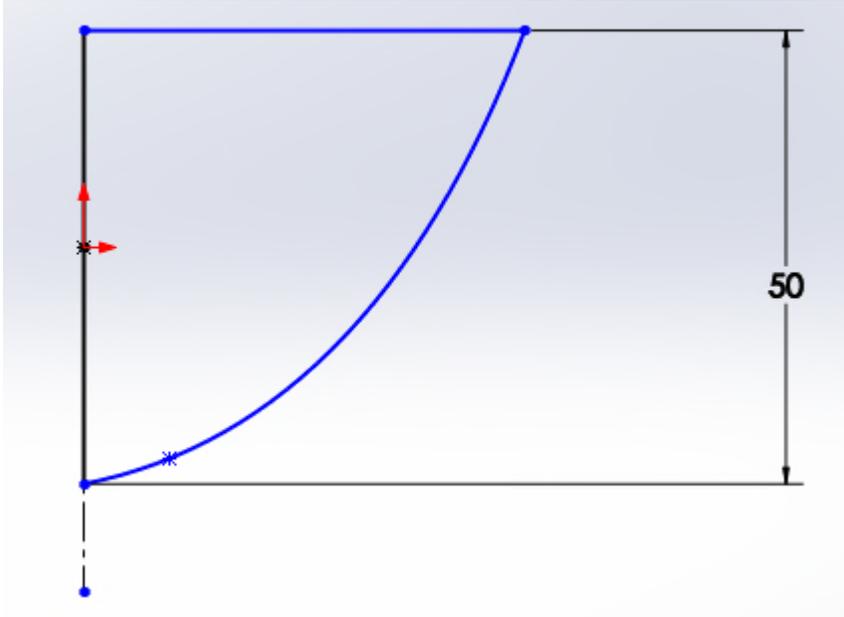


Step 2

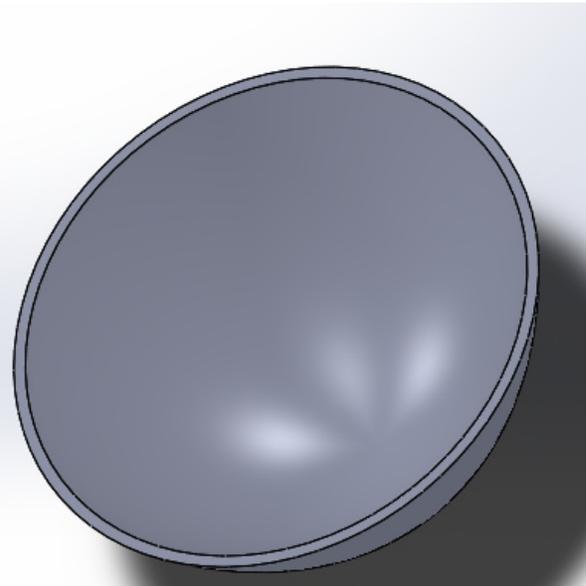
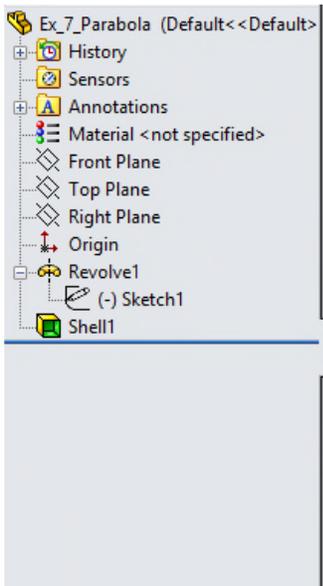


Step 3

11. Problem 2-11

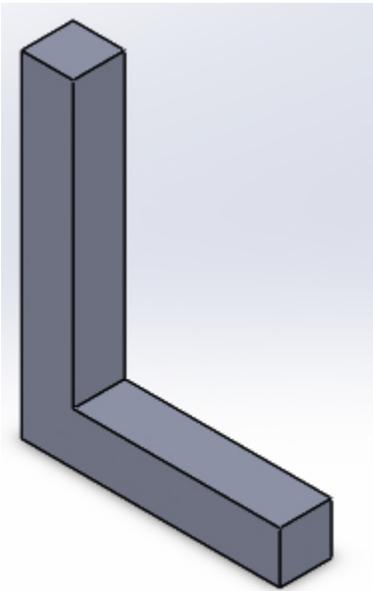
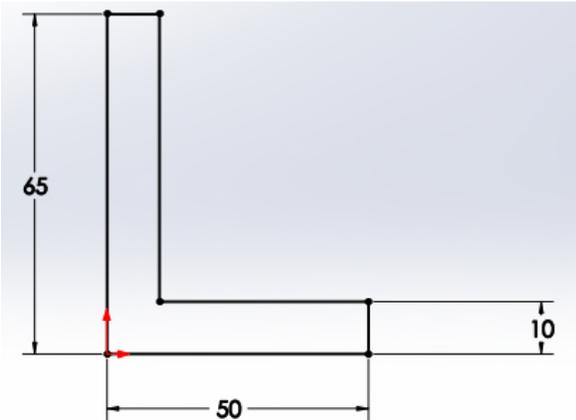


Step 1

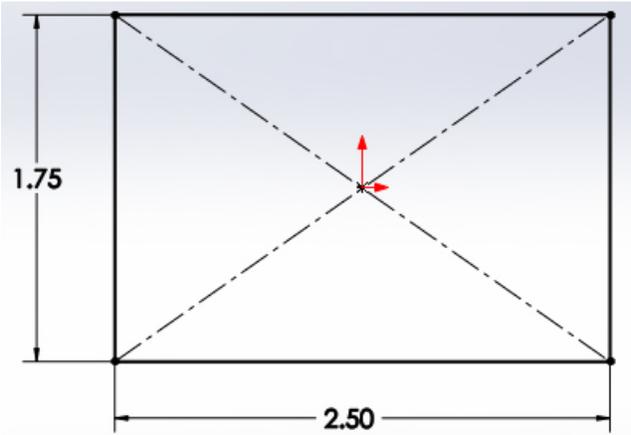


Step 2

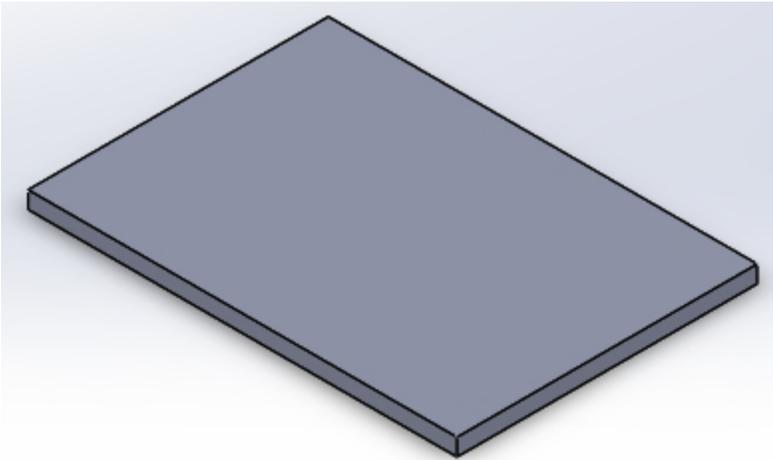
12. Problem 2-12



13. Problem 2-13

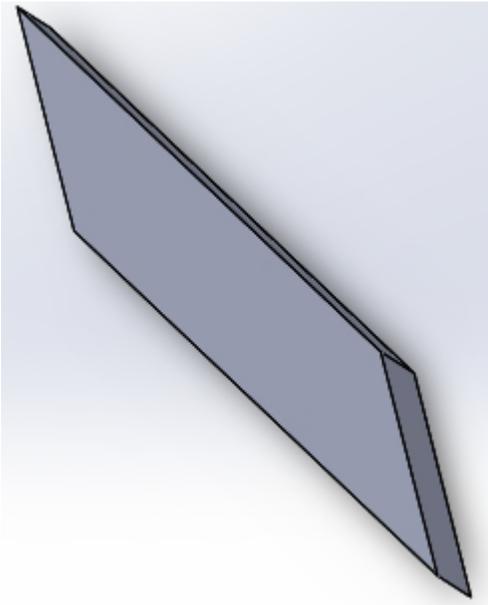
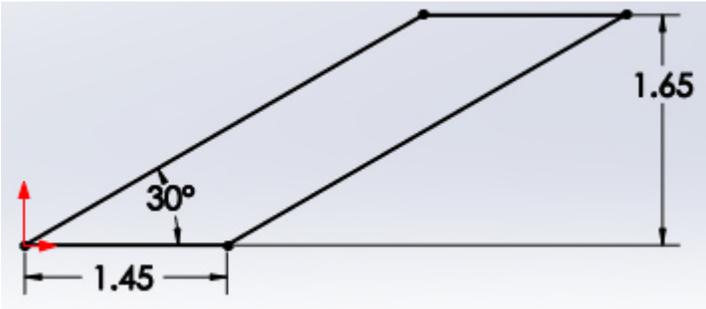


Step 1



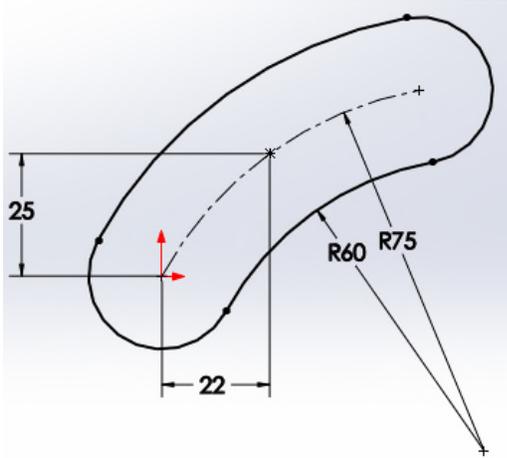
Step 2

14. Problem 2-14

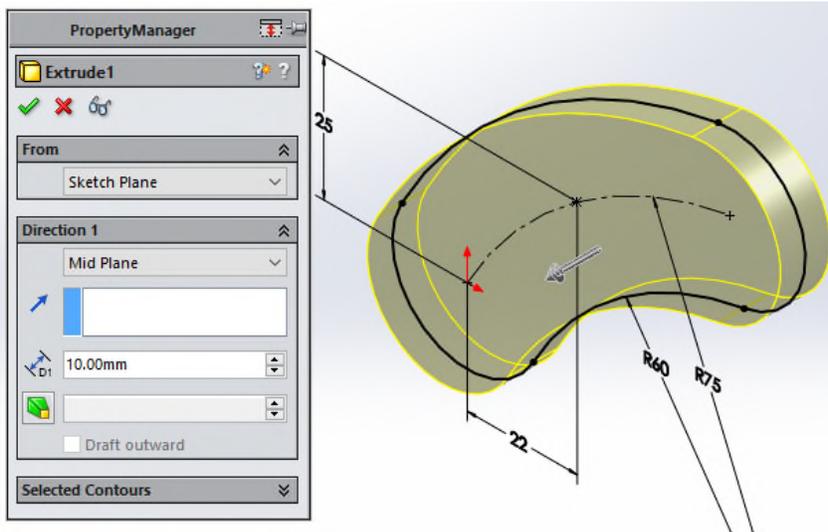


Step 2

15. Problem 2-15

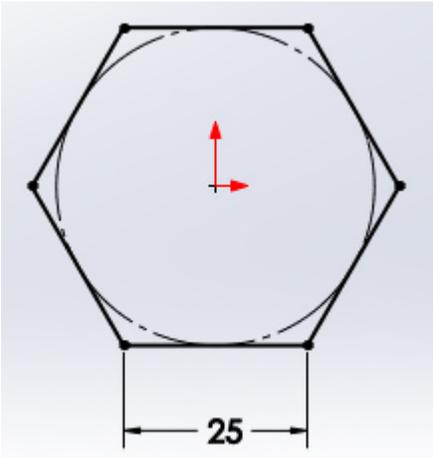


Step 1

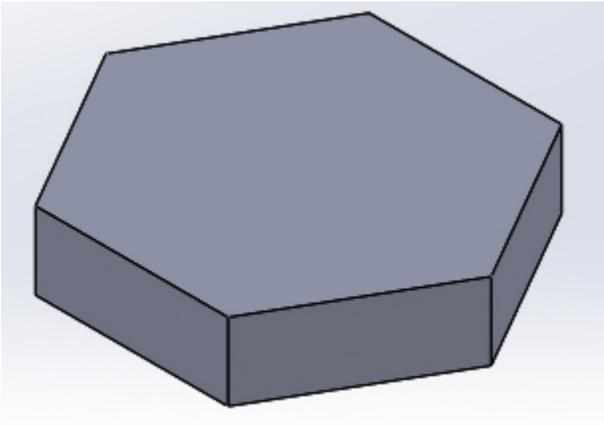


Step 2

16. Problem 2-16

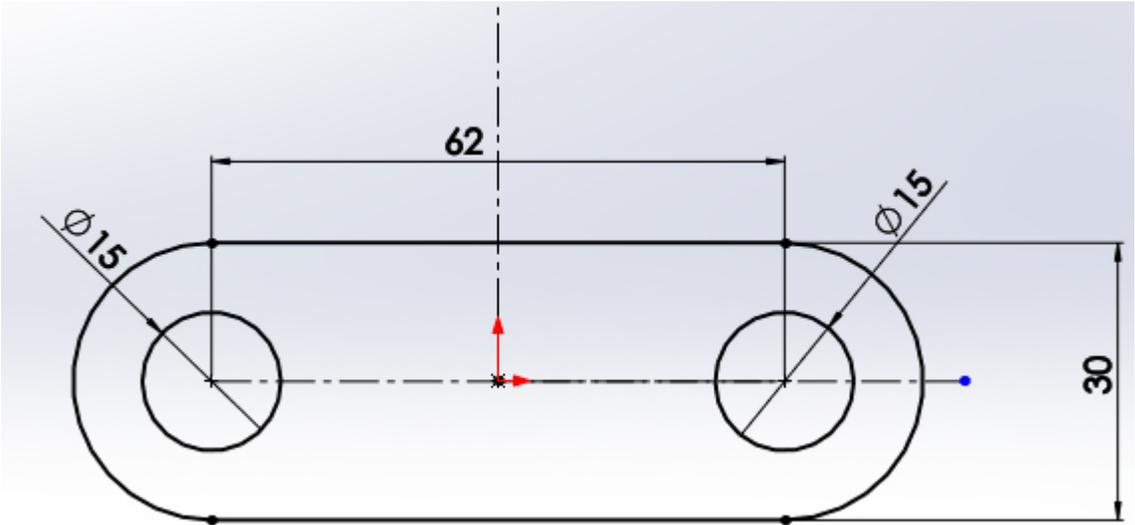


Step 1

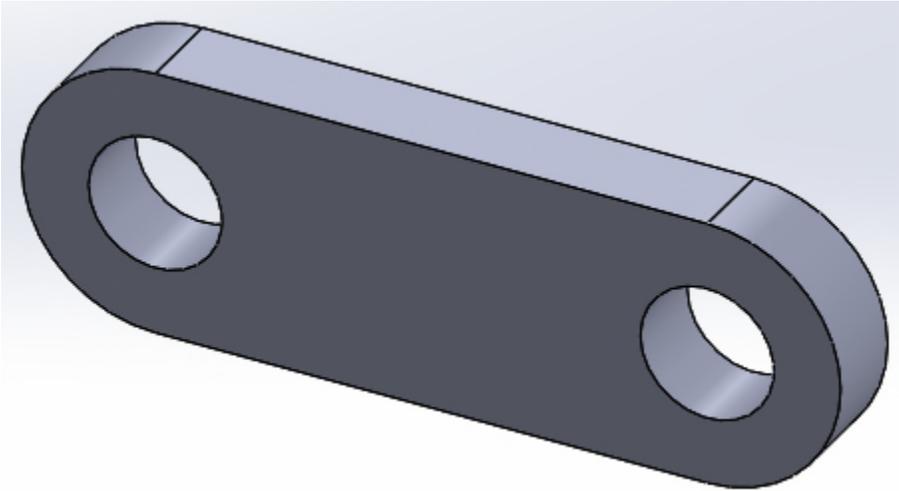


Step 2

17. Problem 2-17



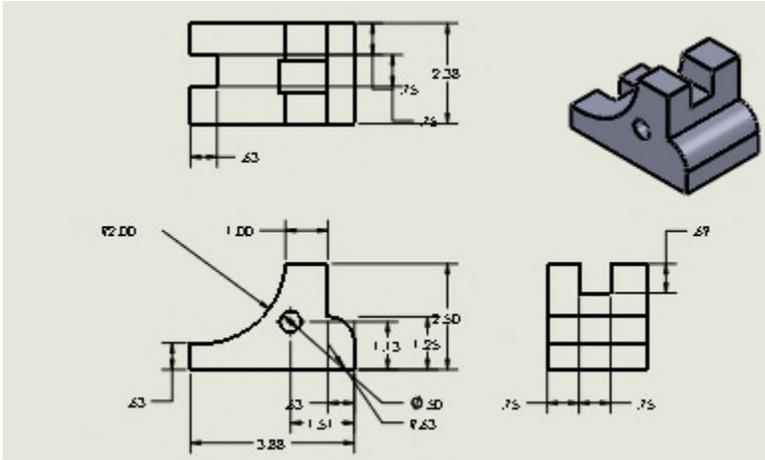
Step 1



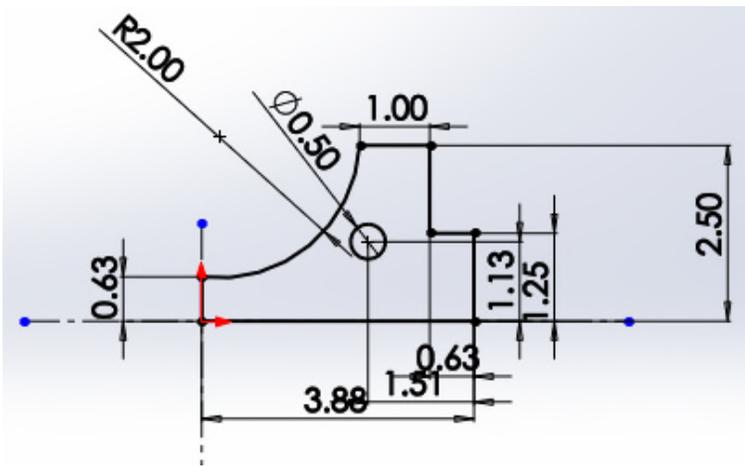
Step 2

Chapter 3: Features

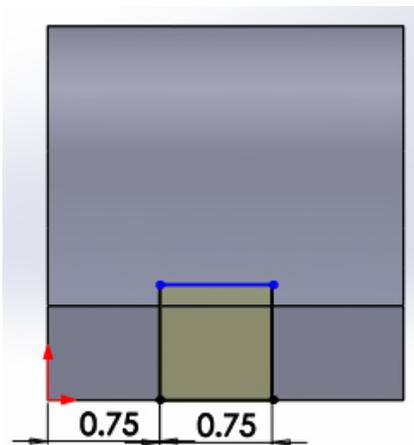
1. Problem 3-1



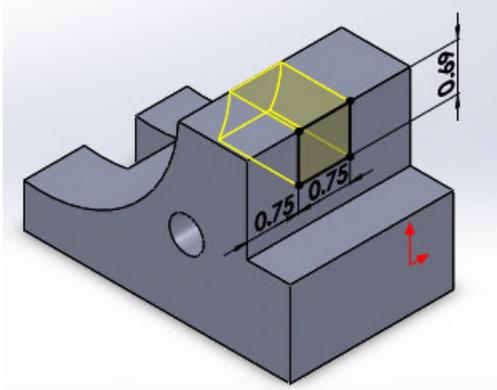
Given problem



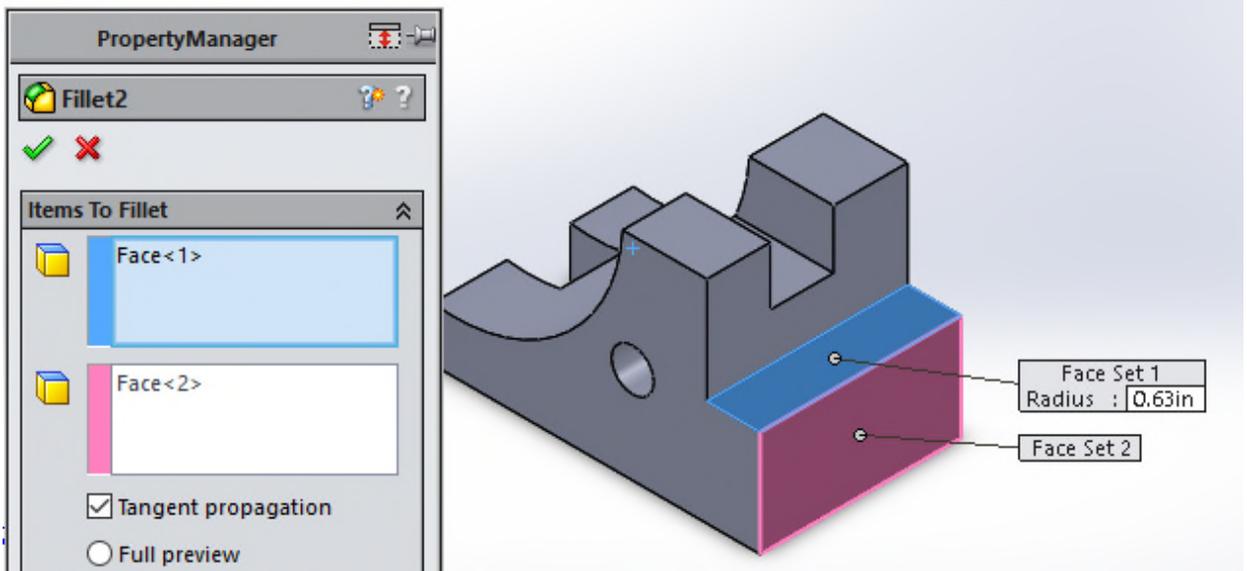
Step 1



Step 2

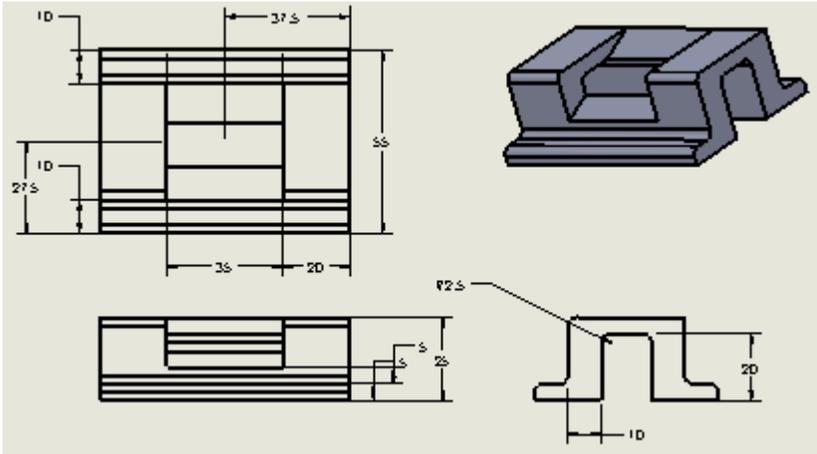


Step 3

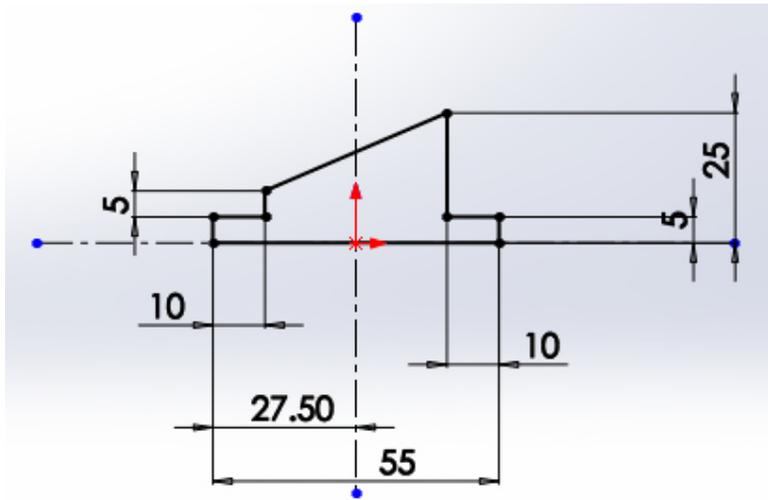


Step 4

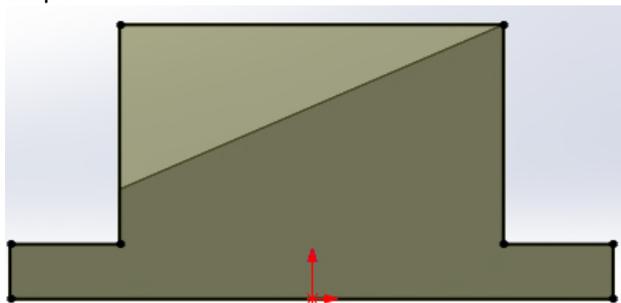
2. Problem 3-2



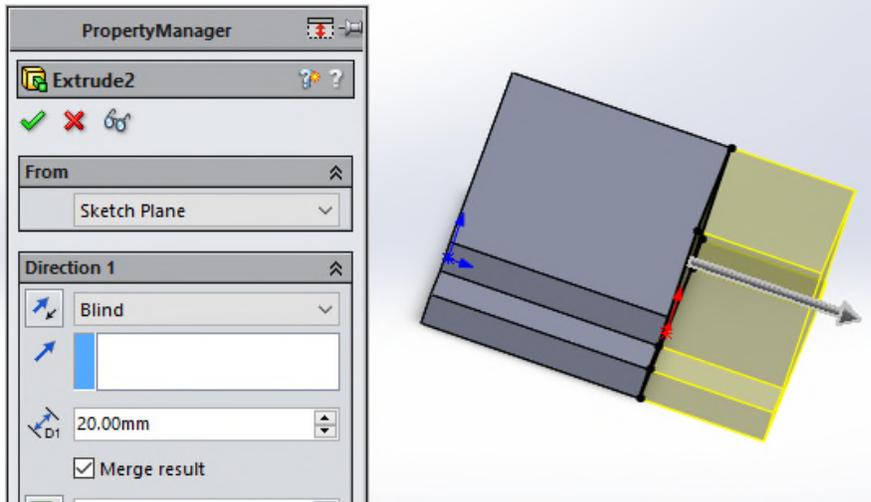
Given problem



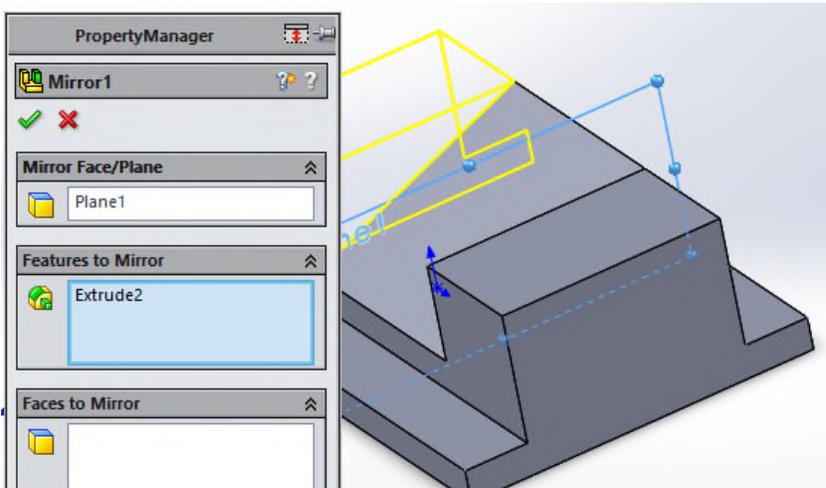
Step 1



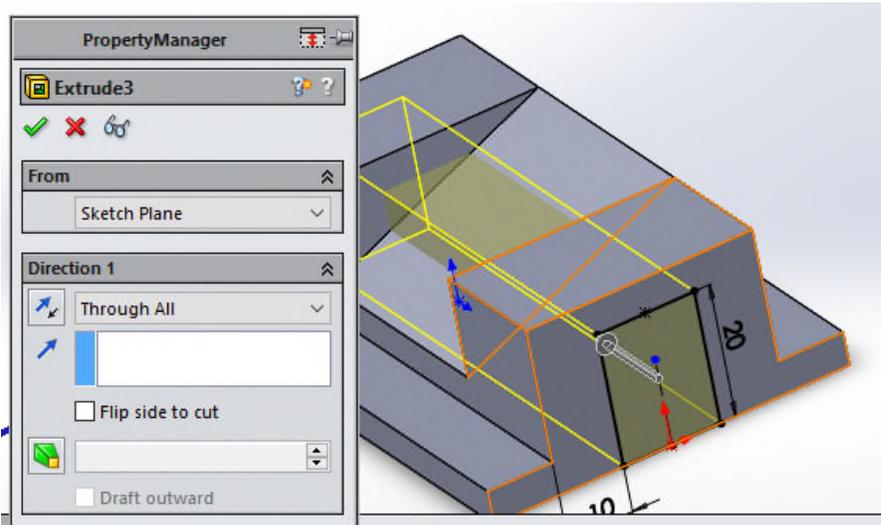
Step 2



Step 3

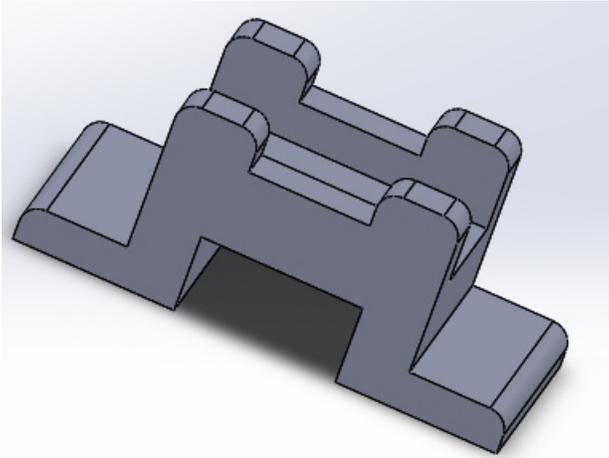


Step 4

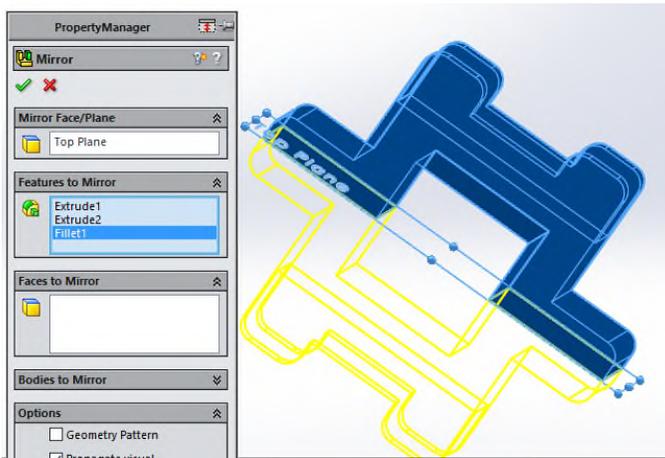


Step 5

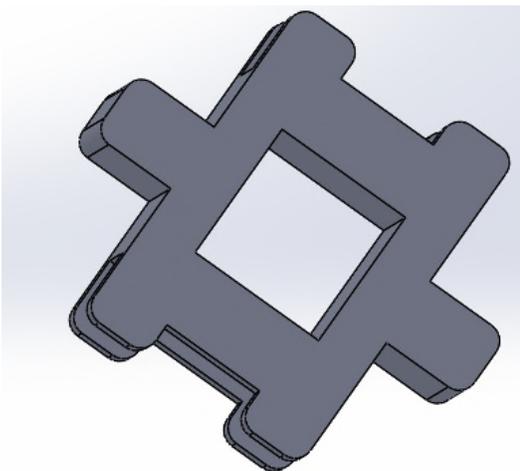
3. Problem 3-3



Step 1



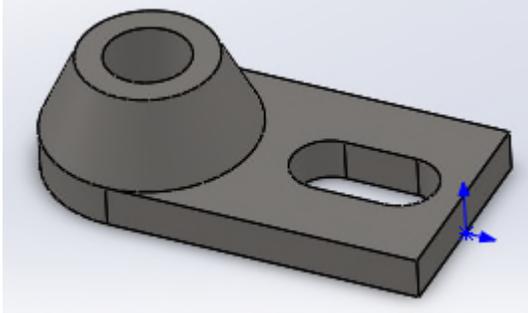
Step 2



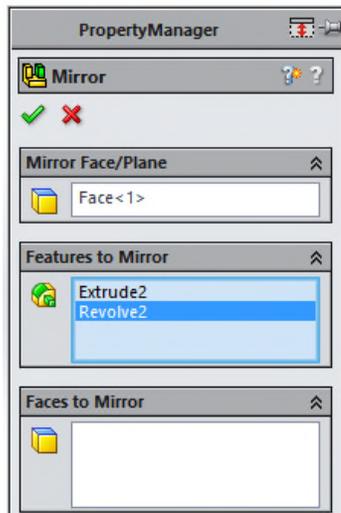
Step 3

Chapter 4: Part Modeling—CSWA Preparations

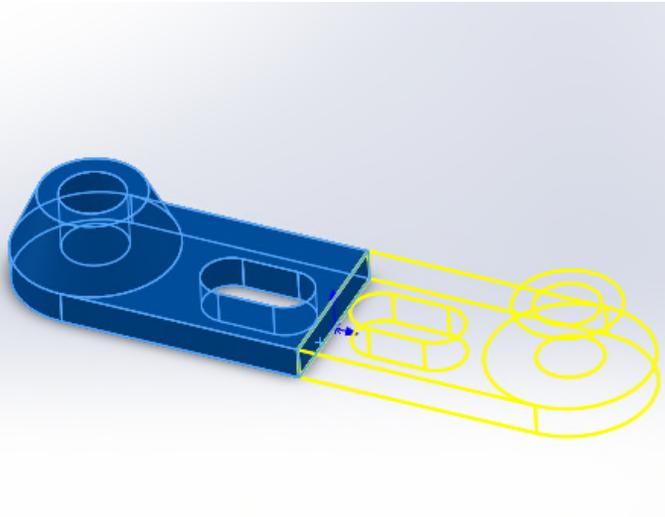
1. Problem 4-1



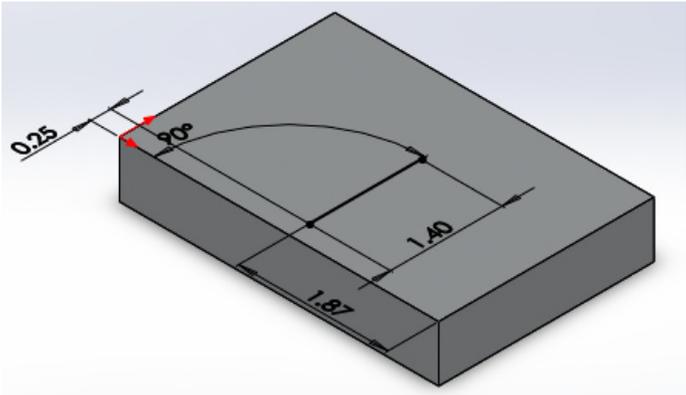
Step 1



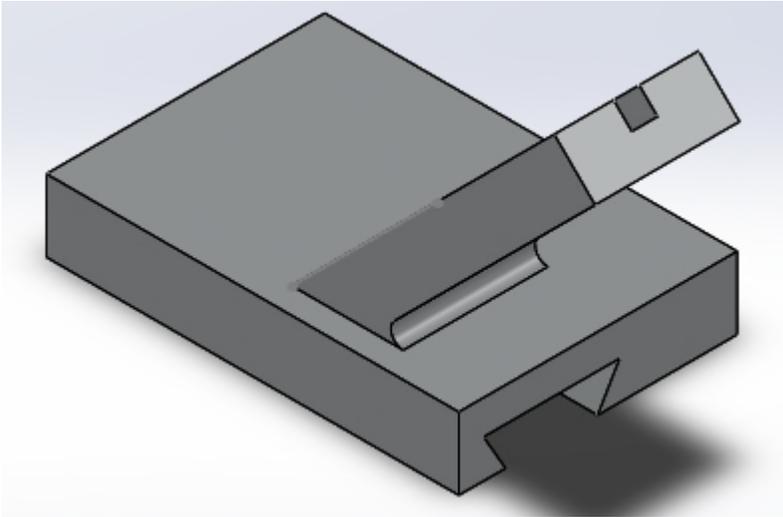
Step 2



2. Problem 4-2

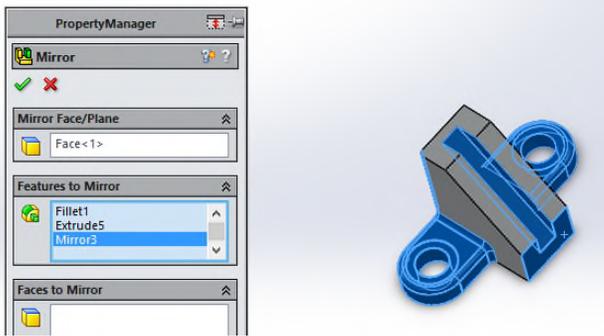


Step 1

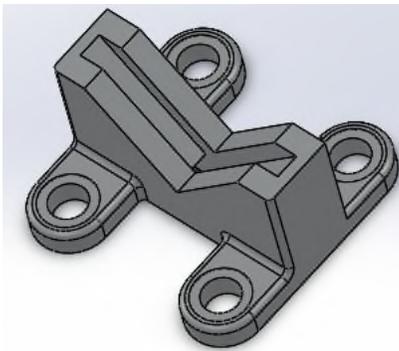


Step 2

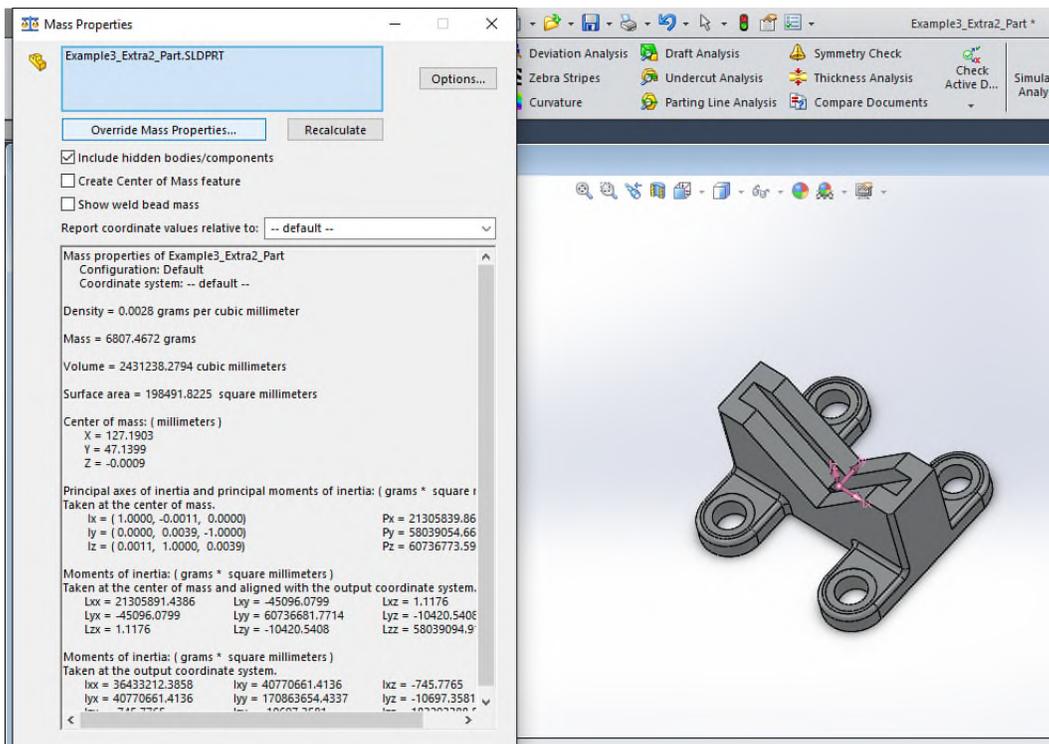
3. Problem 4-3



Step 1

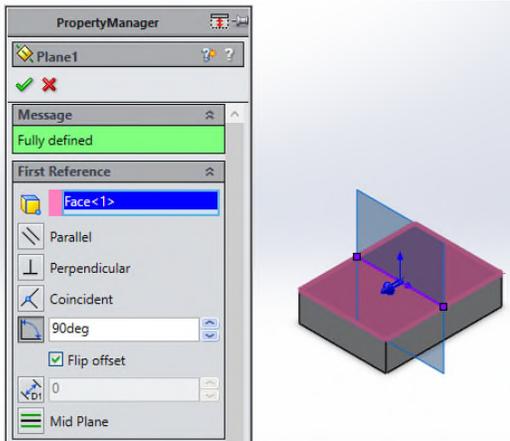


Step 2

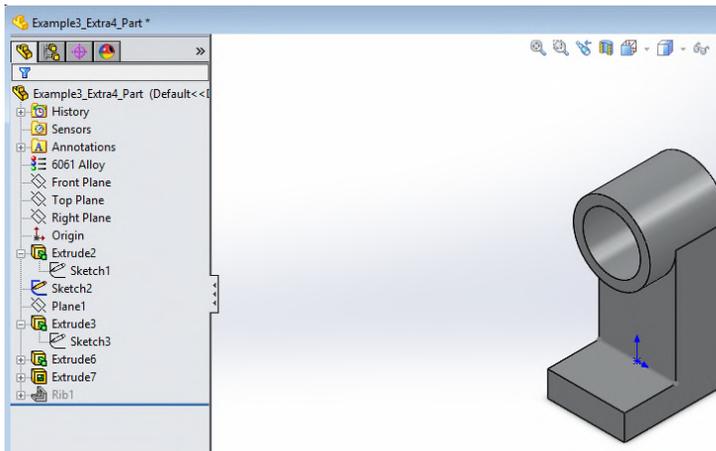


Step 3

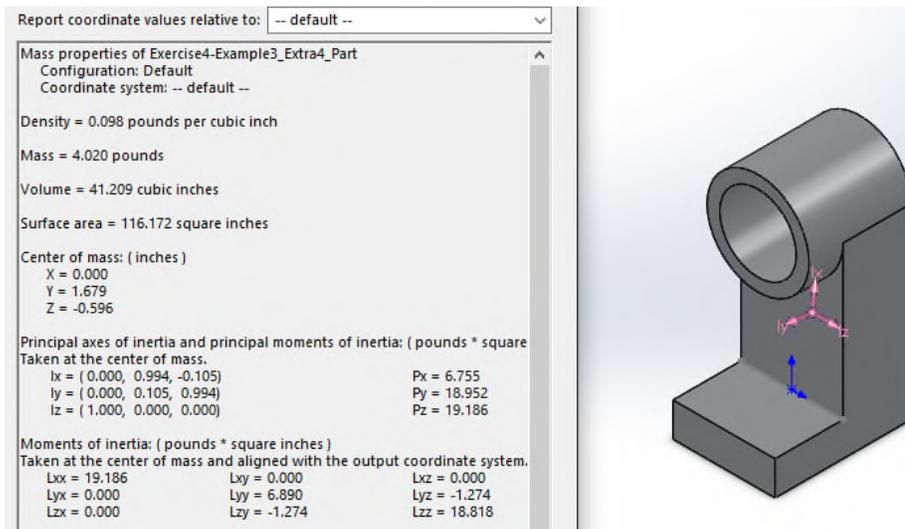
4. Problem 4-4



Step 1



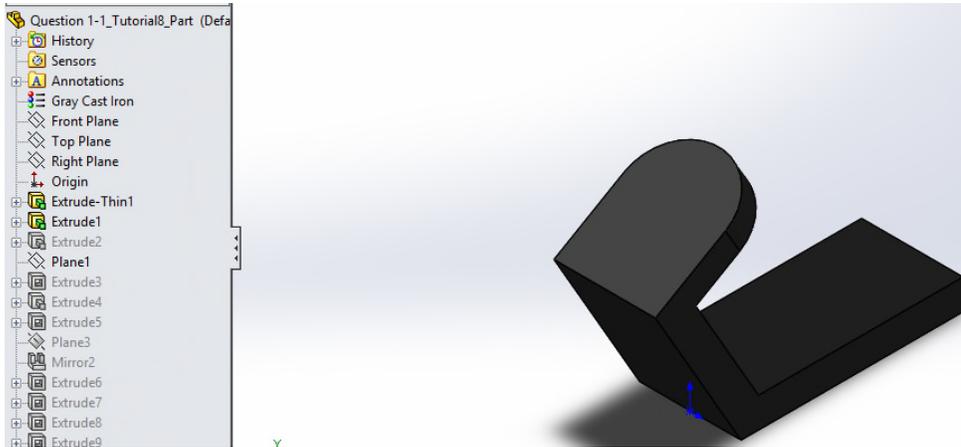
Step 2 [Note: rib is lost]



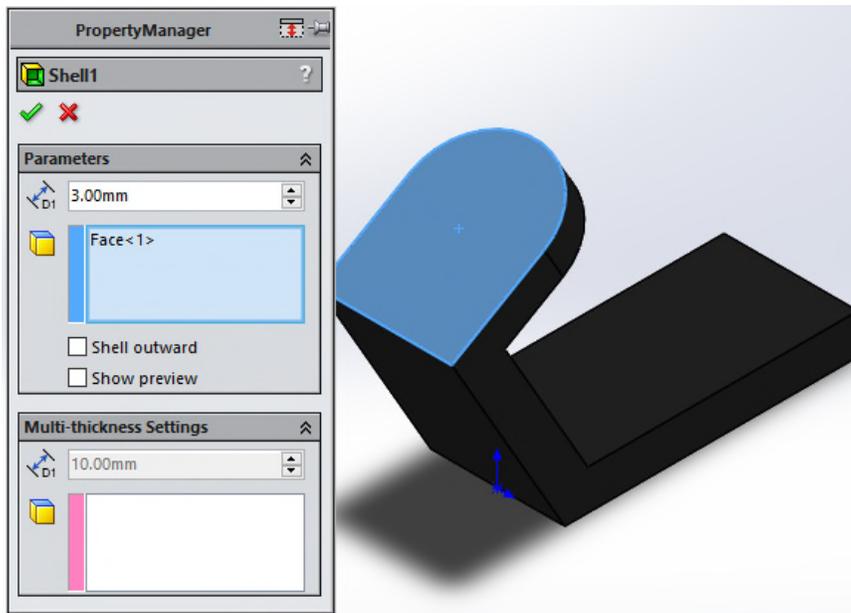
Step 3

Chapter 5: Part Modeling—CSWA Preparations

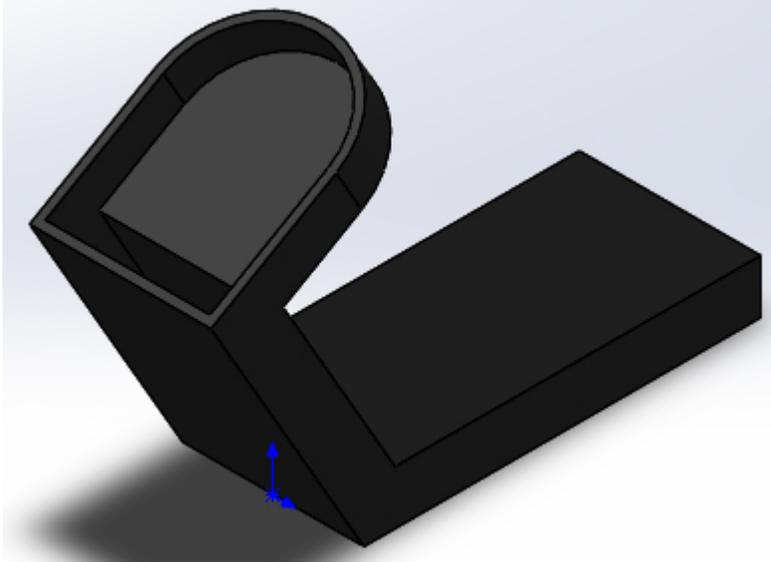
1. Problem 5-1



Step 1



Step 2



Step 3

```

Mass properties of Question 1-1_Tutorial8_Part
Configuration: Default
Coordinate system: -- default --

Density = 0.01 grams per cubic millimeter
Mass = 916.71 grams
Volume = 127321.34 cubic millimeters
Surface area = 85680.49 square millimeters

Center of mass: ( millimeters )
X = 0.00
Y = 38.08
Z = -30.63

Principal axes of inertia and principal moments of inertia: ( grams * square millimeters )
Taken at the center of mass.
lx = ( 0.00, 0.50, 0.87) Px = 1044753.21
ly = ( 0.00, -0.87, 0.50) Py = 3817601.18
lz = ( 1.00, 0.00, 0.00) Pz = 4052969.20

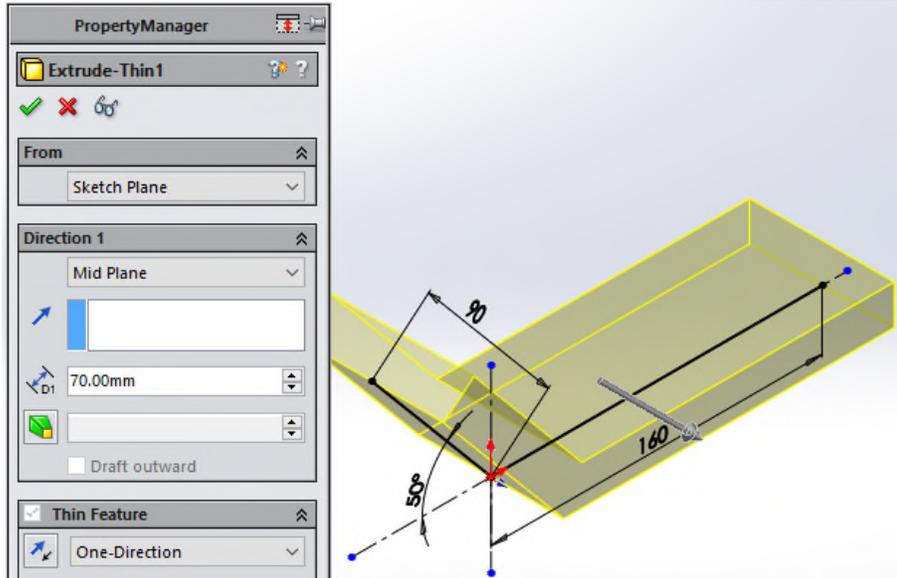
Moments of inertia: ( grams * square millimeters )
Taken at the center of mass and aligned with the output coordinate system.
Lxx = 4052969.20 Lxy = 0.00 Lxz = 0.00
Lyx = 0.00 Lyy = 3136860.11 Lyz = 1193391.42
Lzx = 0.00 Lzy = 1193391.42 Lzz = 1725494.28

Moments of inertia: ( grams * square millimeters )
Taken at the output coordinate system.
Ixx = 6242390.44 Ixy = 0.00 Ixz = 0.00
Iyx = 0.00 Iyy = 3996764.09 Iyz = 124159.37
Izx = 0.00 Izy = 124159.37 Izz = 2072011.73
            
```

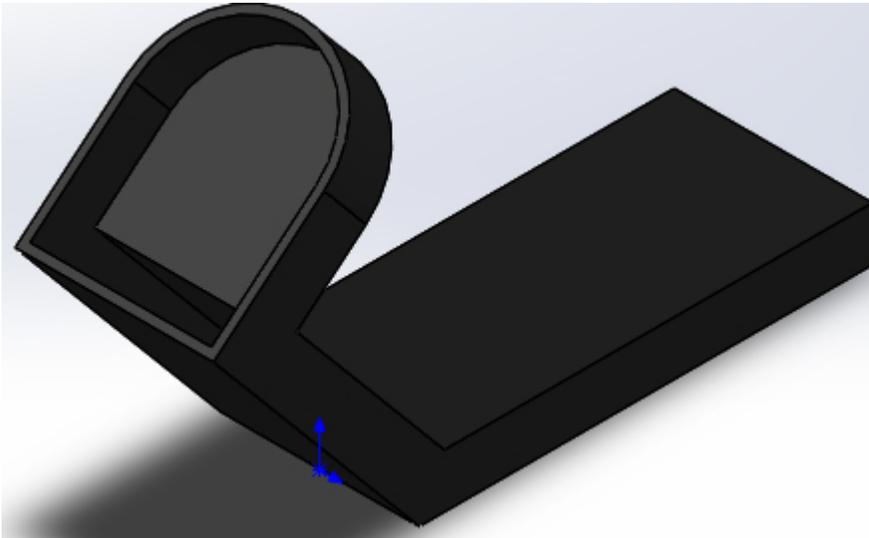
The same 3D CAD model as in Step 3, but with a red coordinate system (X, Y, Z) overlaid on the part. The X-axis points to the right, the Y-axis points upwards, and the Z-axis points downwards. A blue double-headed arrow is also present at the bottom left corner.

Step 4

2. Problem 5-2



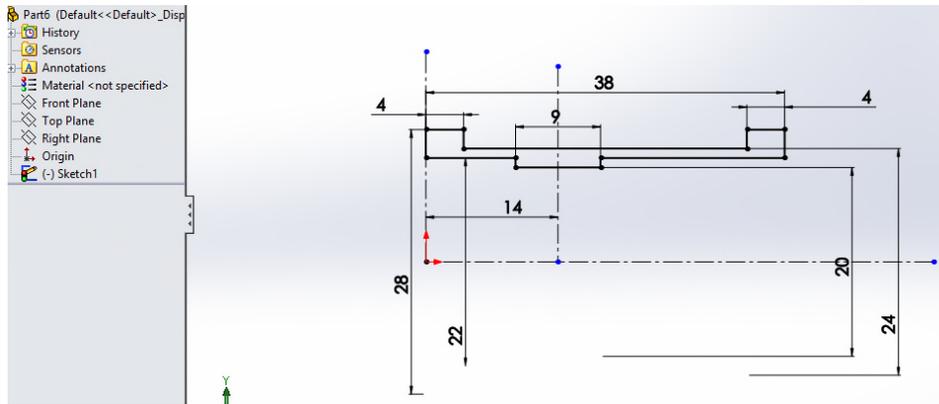
Step 1



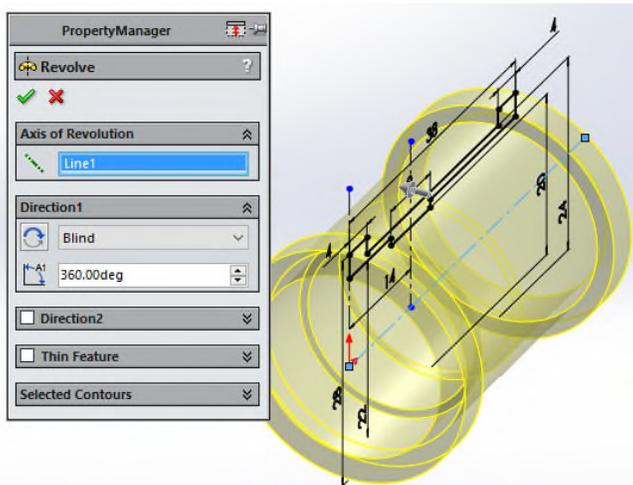
Step 2

Projects

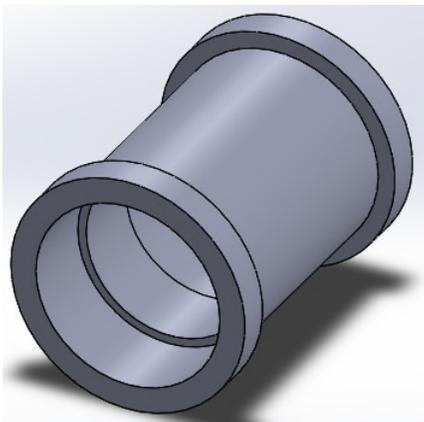
3. P1



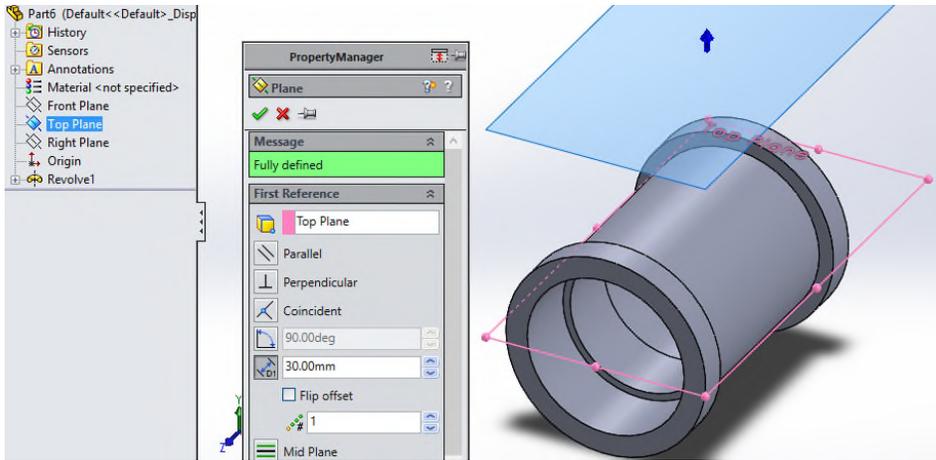
Step 1



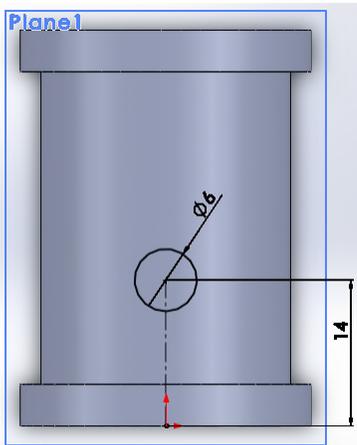
Step 2



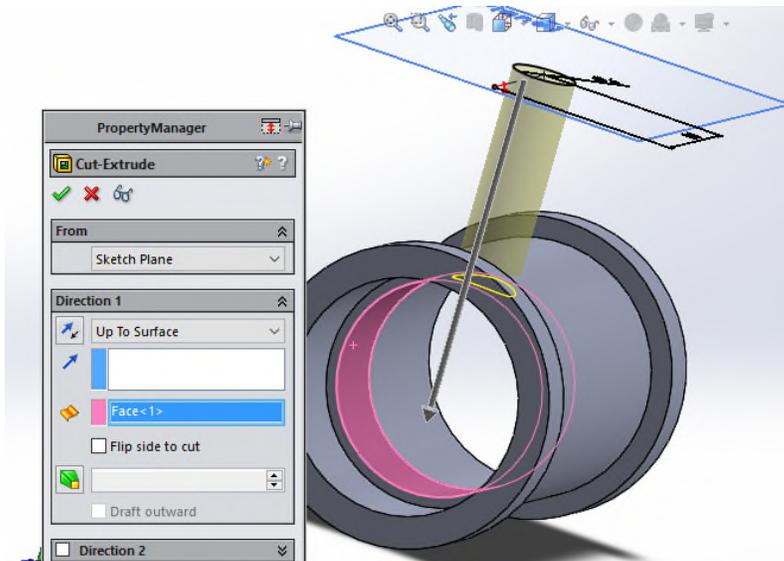
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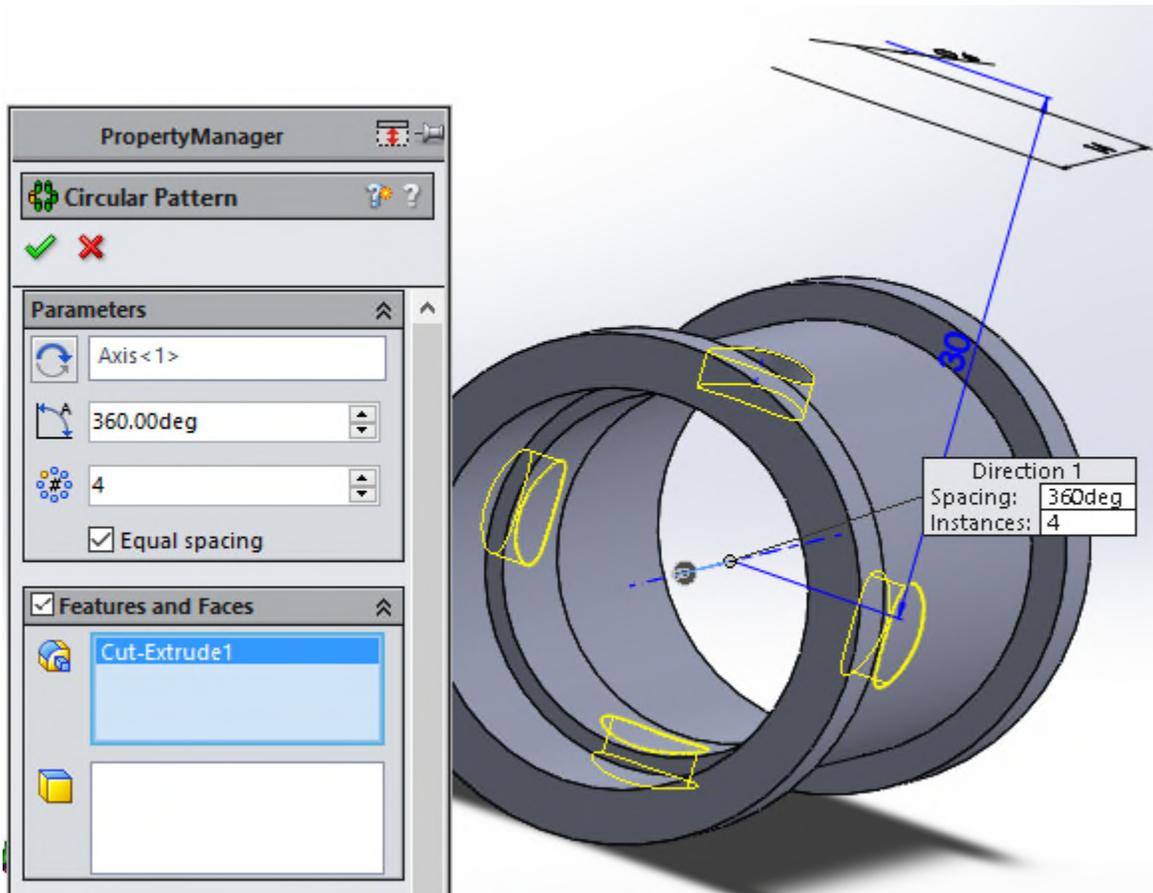
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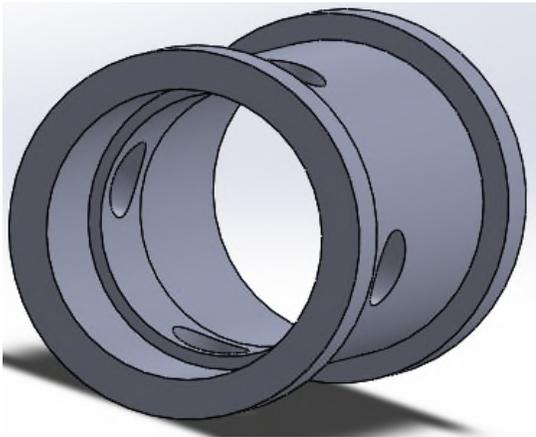
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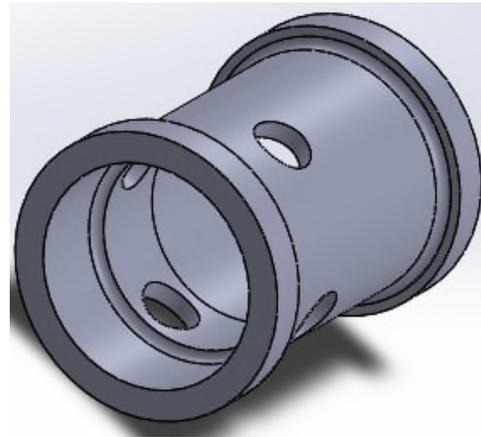
Step 6



Step 7

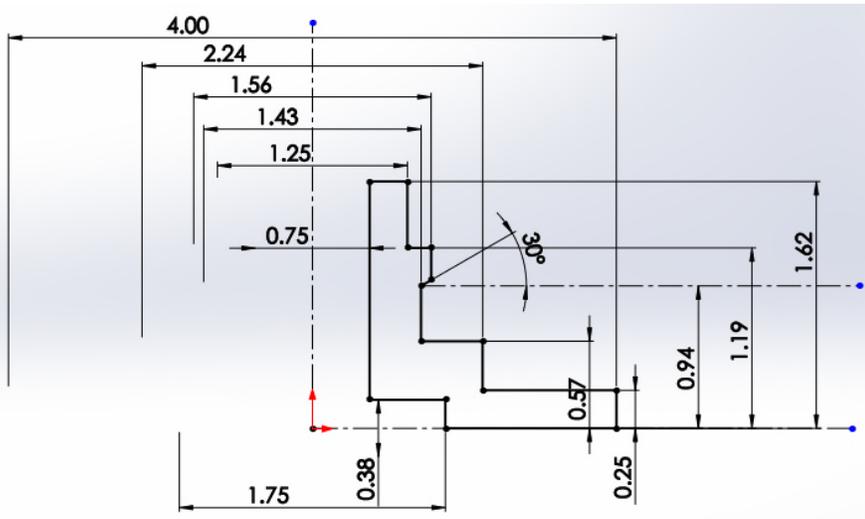


Step 8

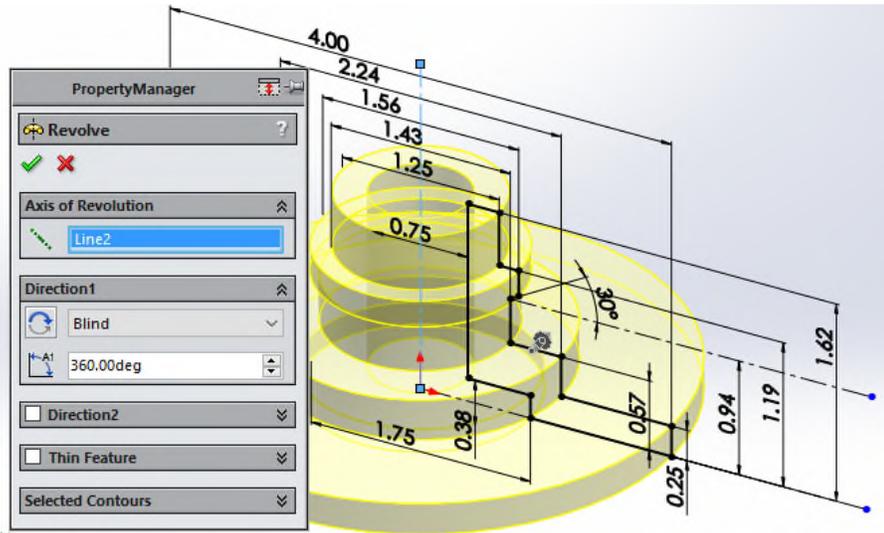


Step 9

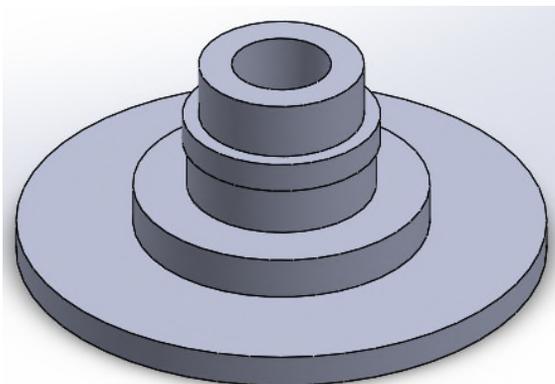
4. P2



Step 1

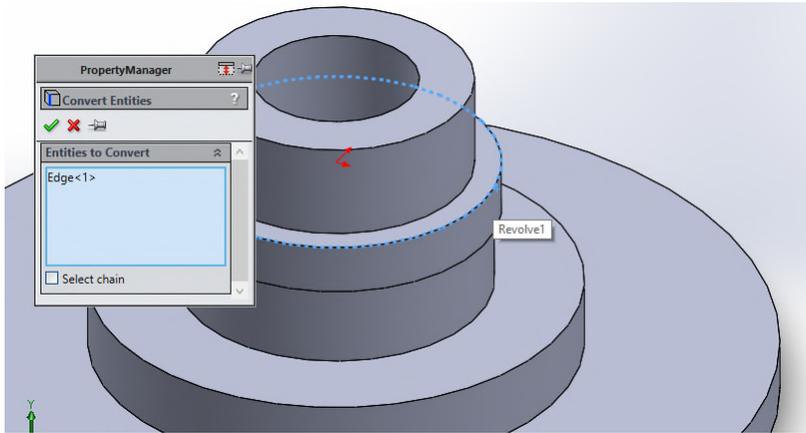


Step 2

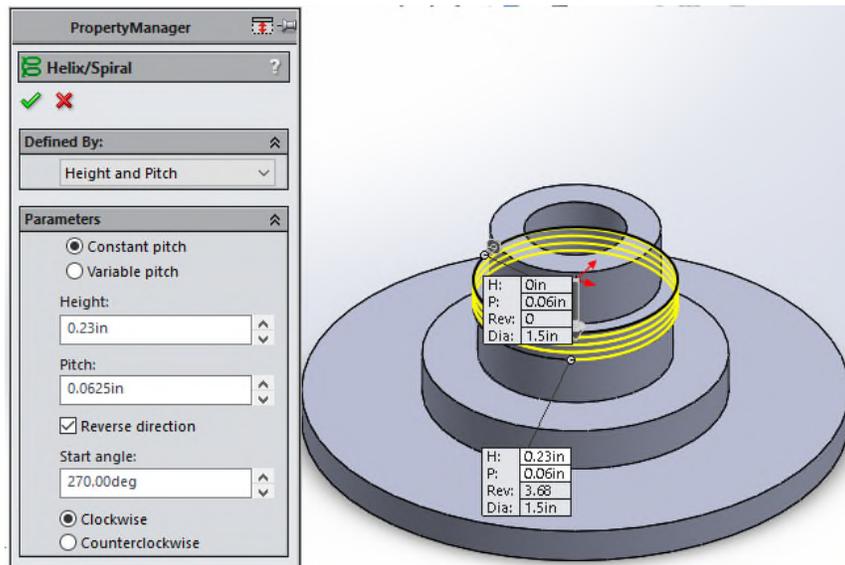


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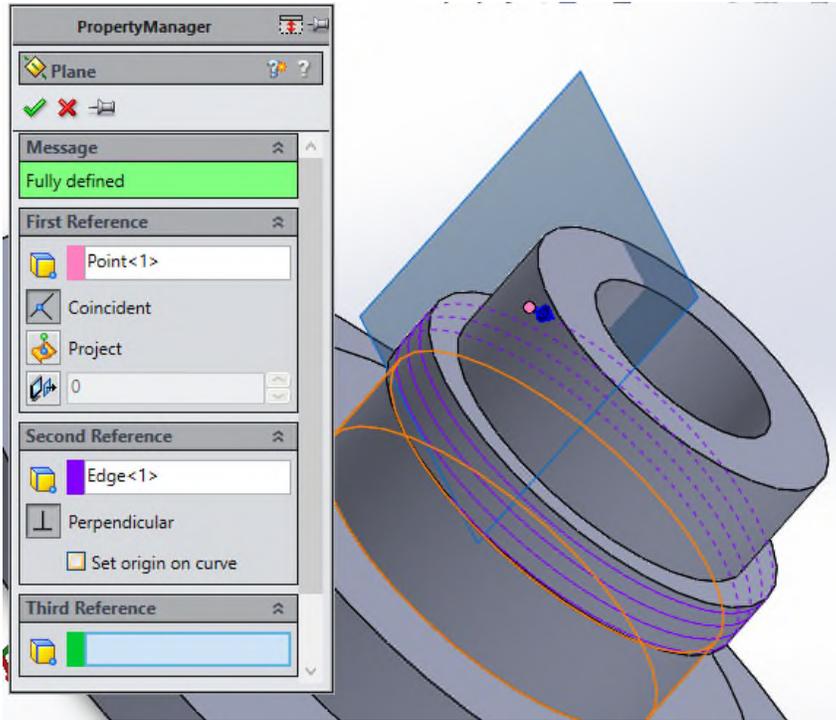
Use all formulas in chapter 30 for design of external threads; note that the diameter of 1.56 will reduce to 1.49.



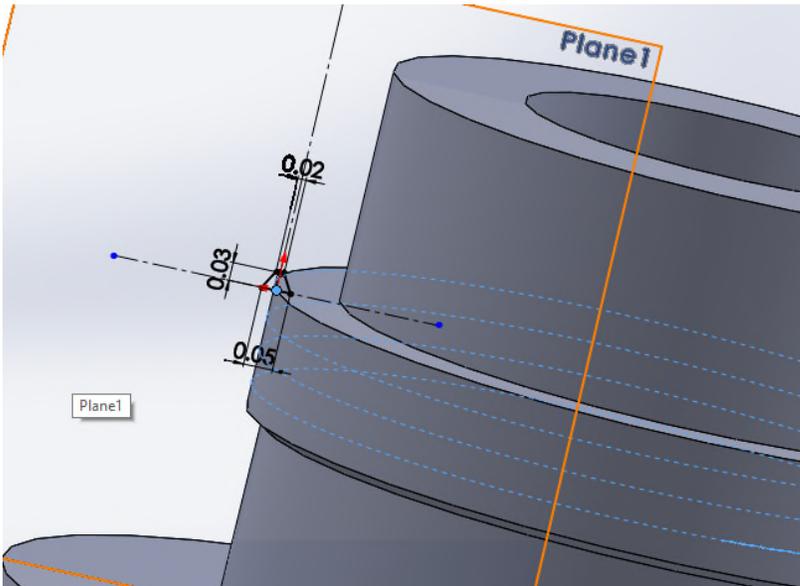
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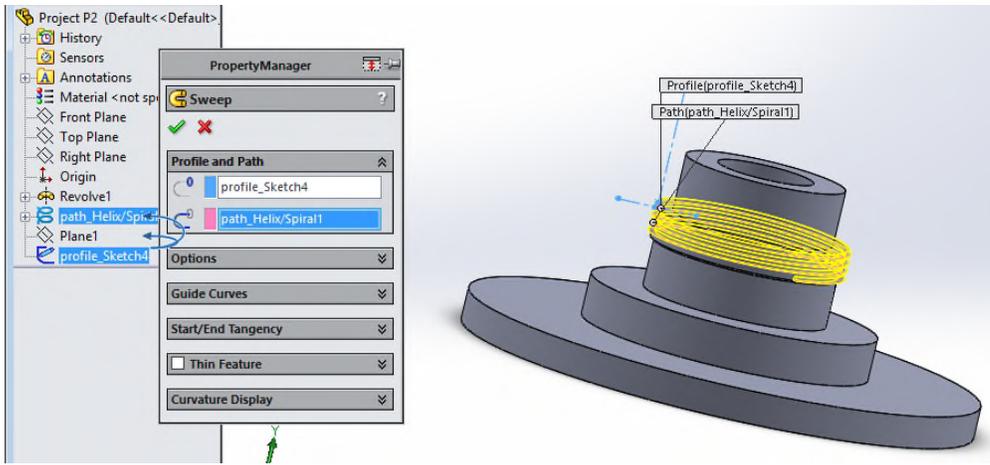
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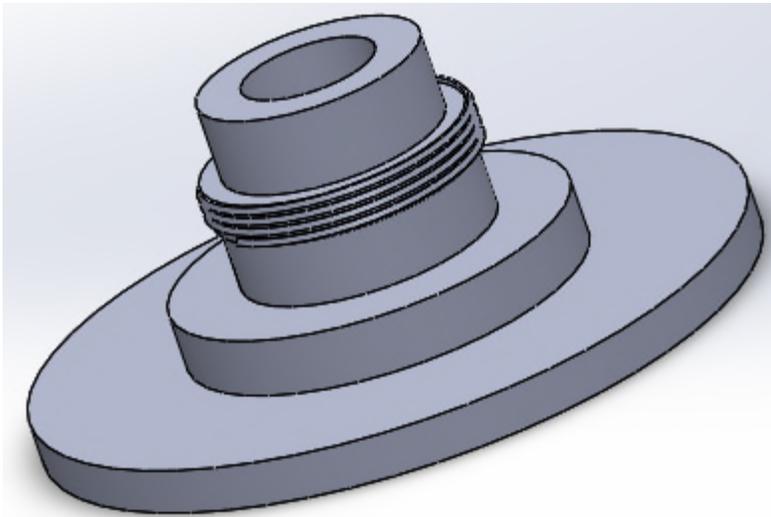
Step 6



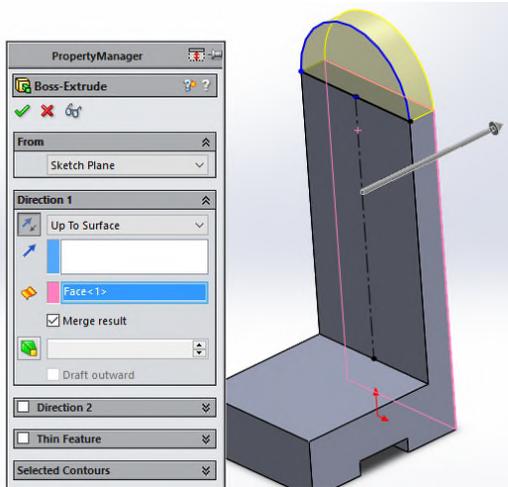
Step 7



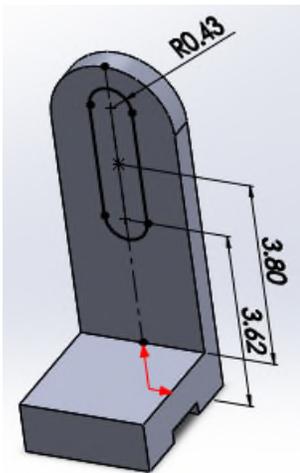
Step 8



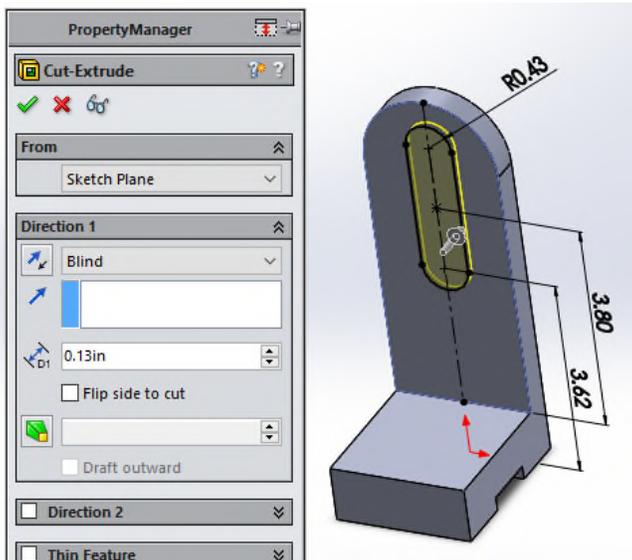
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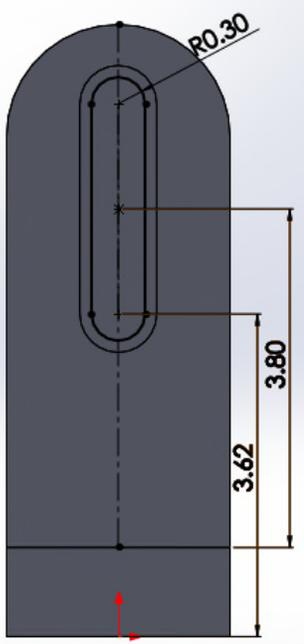
Step 3



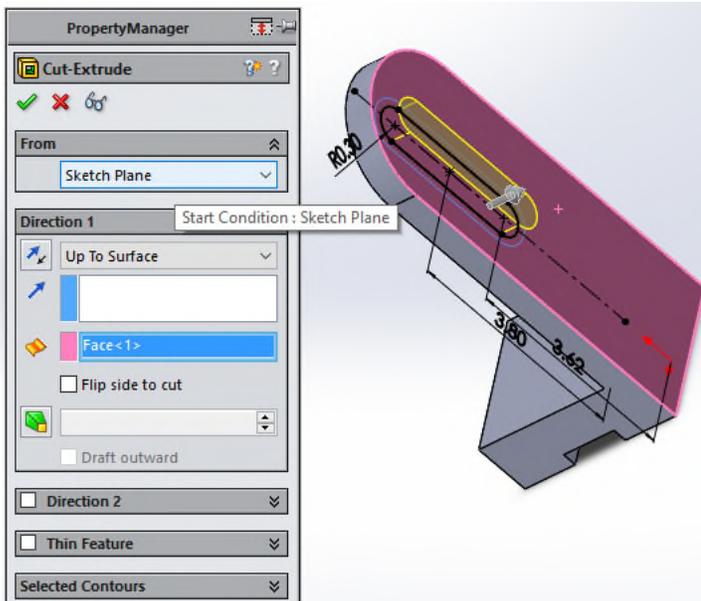
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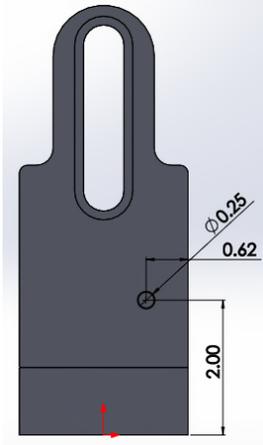
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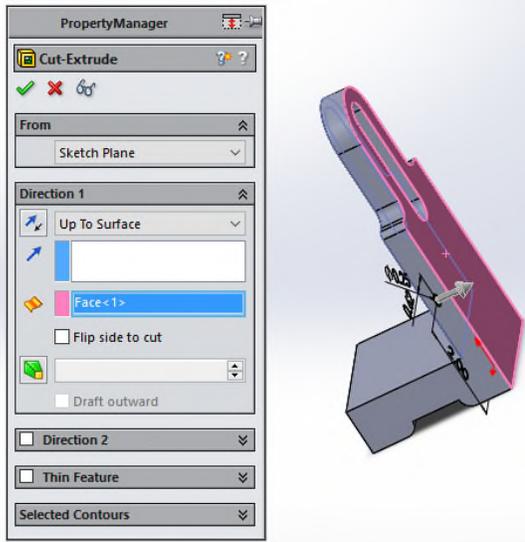
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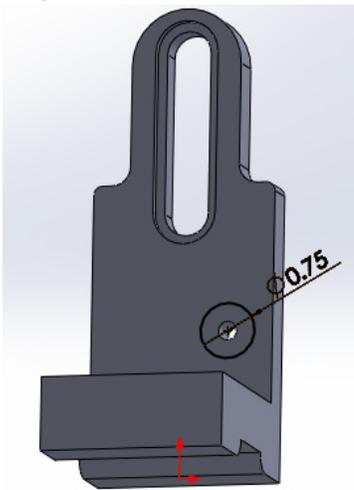
Step 7



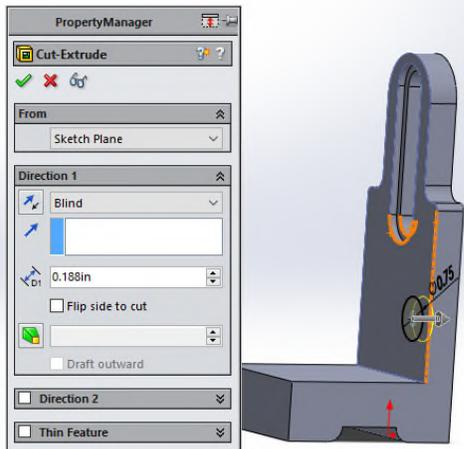
Step8



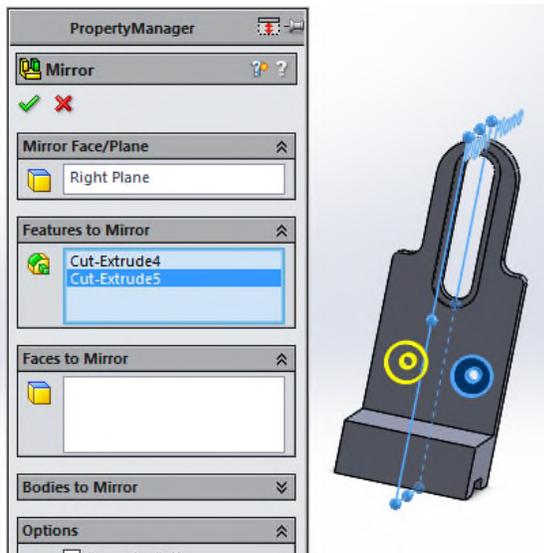
Step9



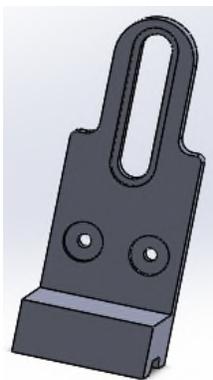
Step10



Step 11



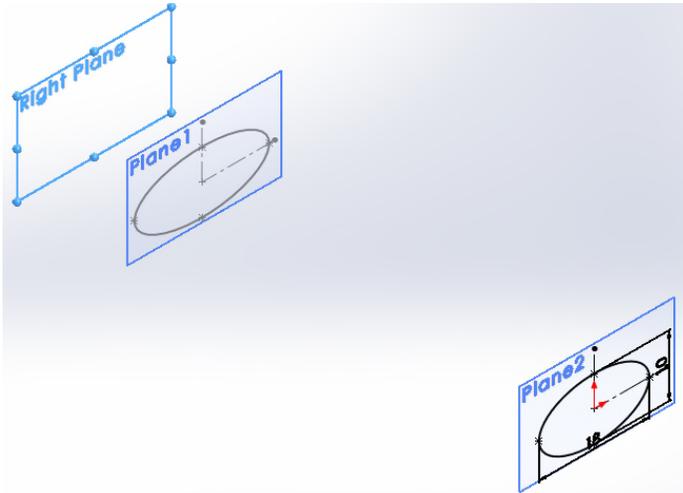
Step 12



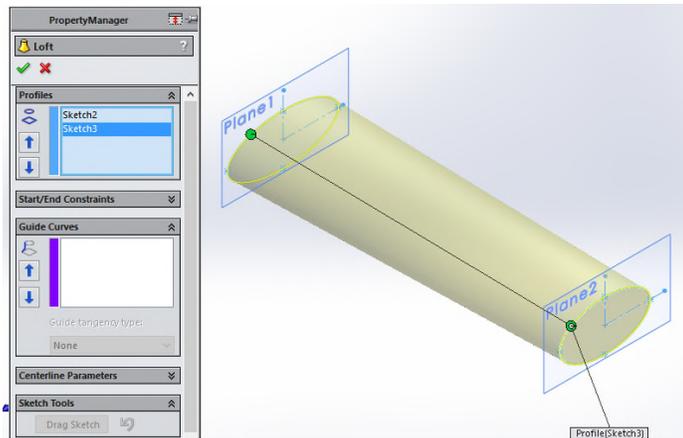
Step 13

Chapter 6: Creating Revolved, Swept, and Lofted Parts

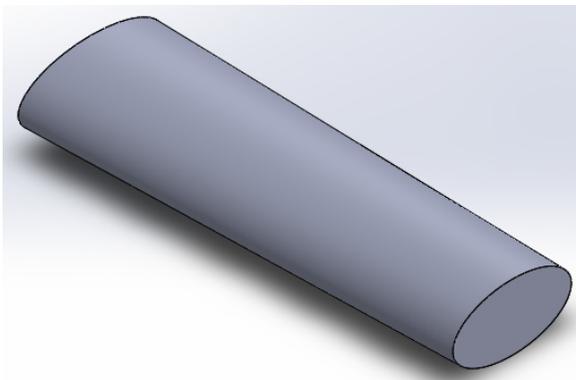
1. Problem 6-1



Step 1



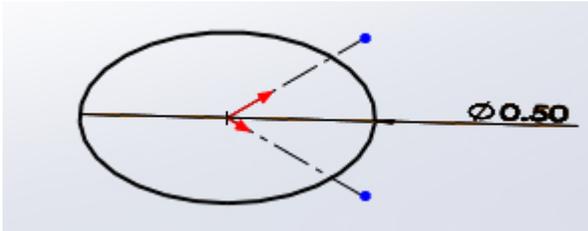
Step 2



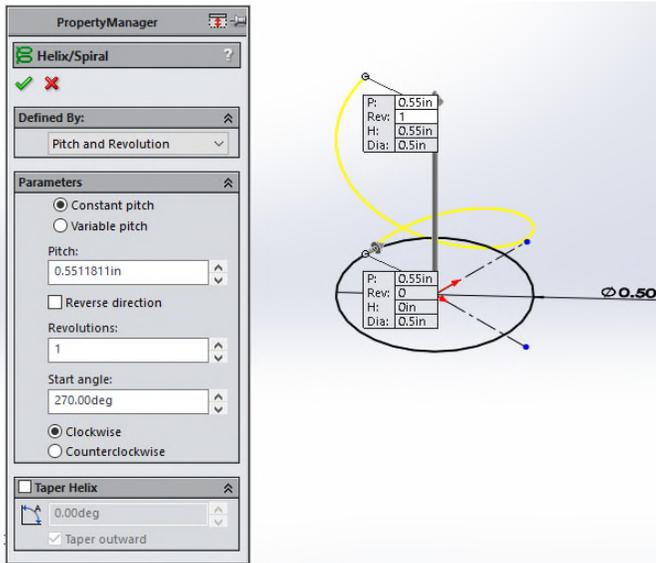
Step 3

Step4: Use Circular Pattern tool to replicate 4 times (see Figure 6-91)

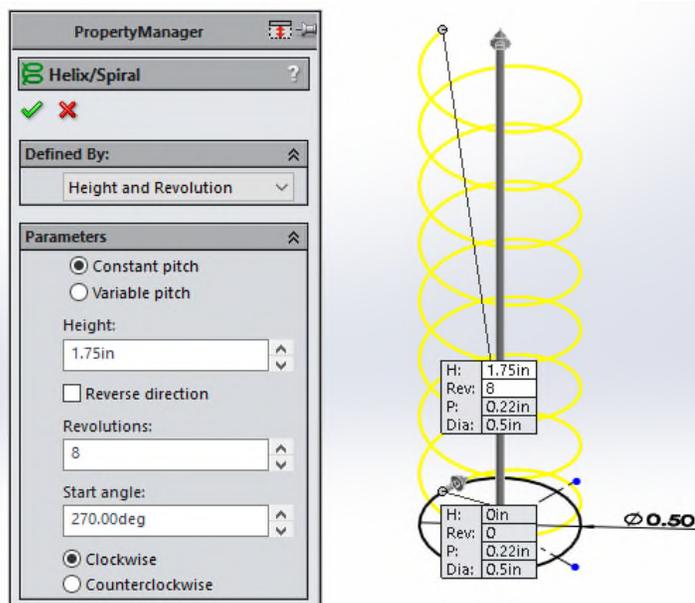
2. Problem 6-2



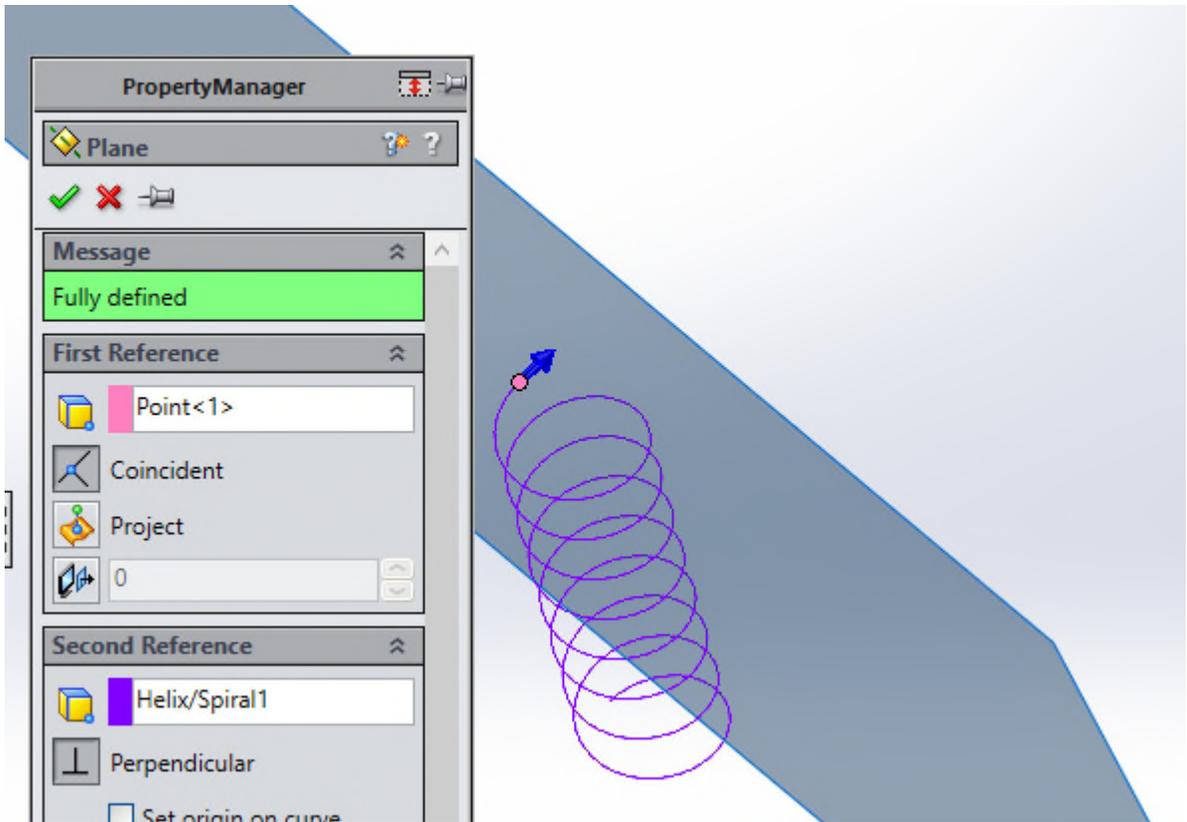
Step 1



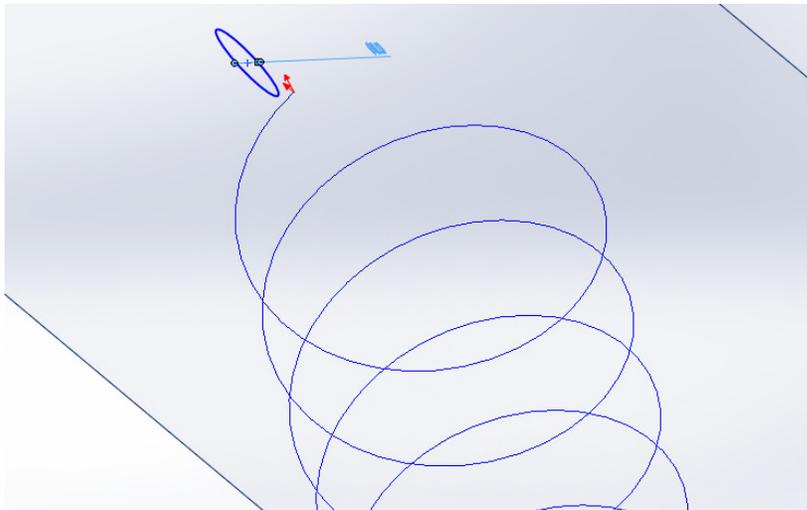
Step 2



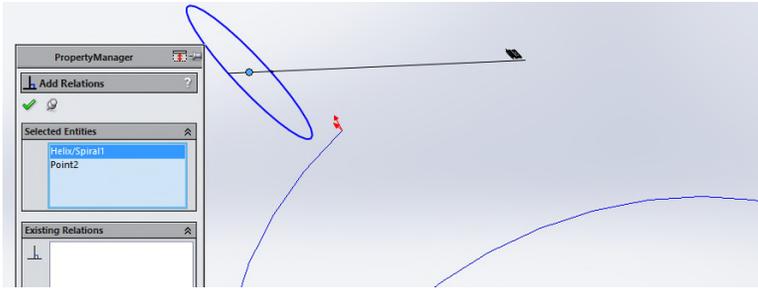
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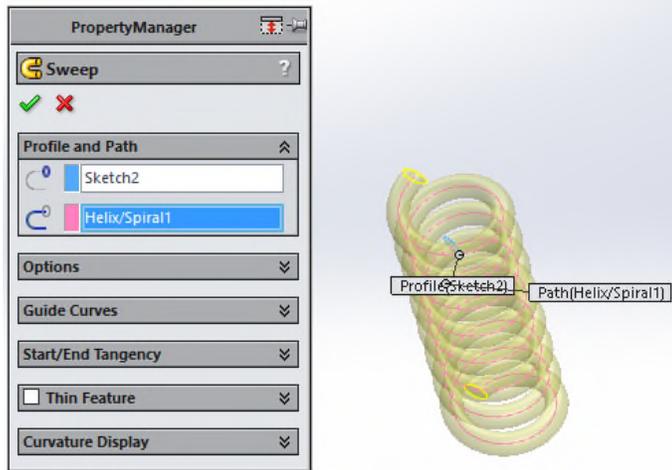
Step 4



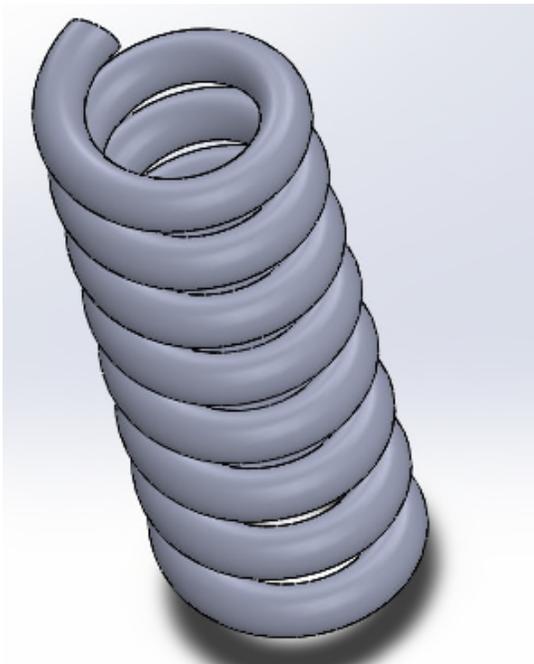
Step 5



Step 6

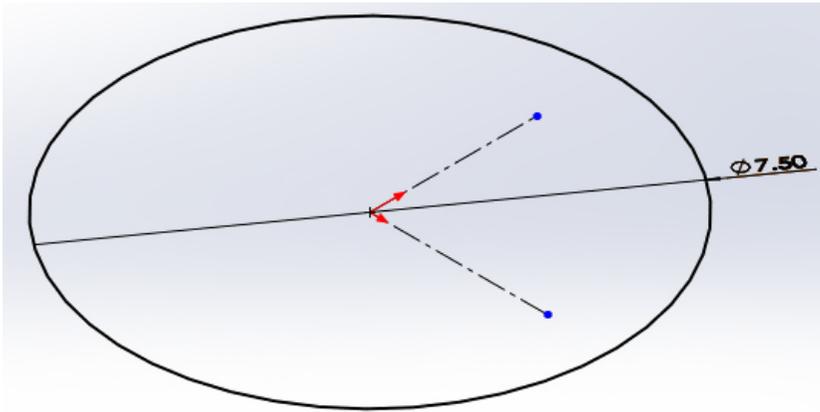


Step 7

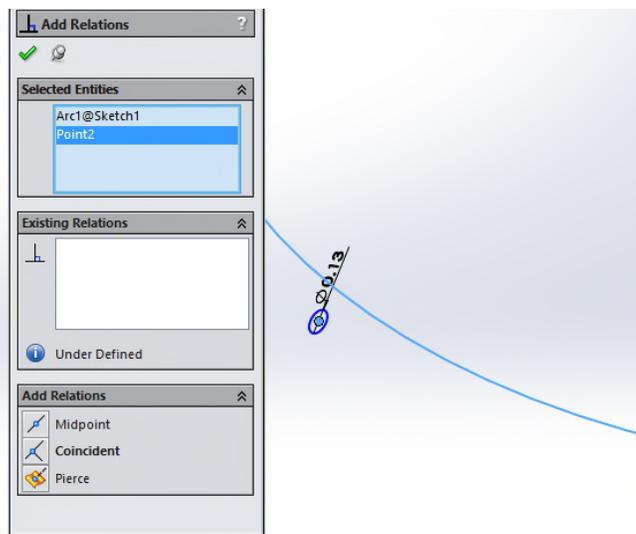


Step 8

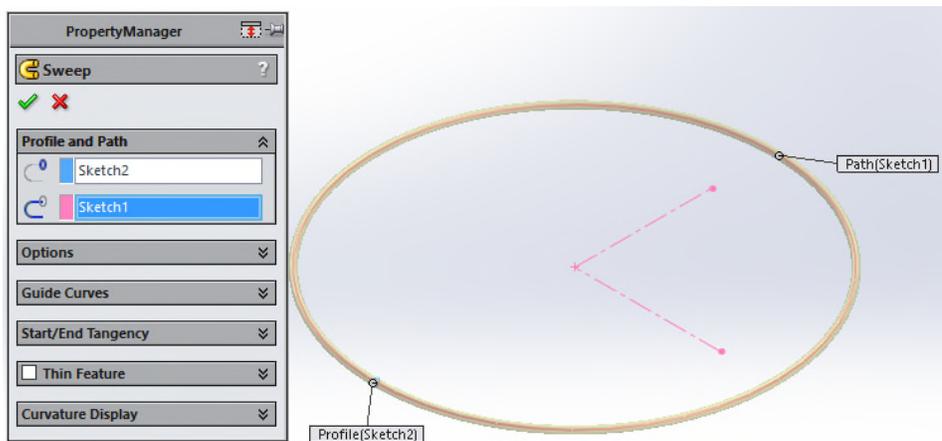
3. Problem 6-3



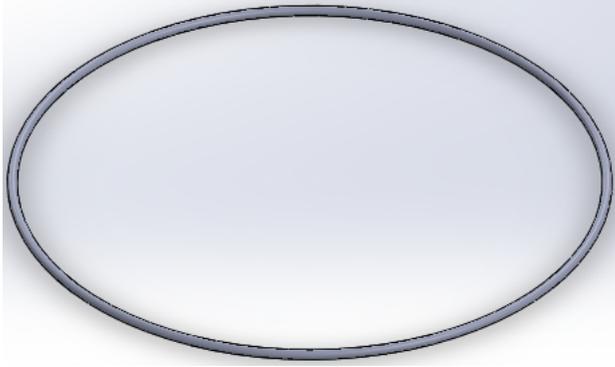
Step 1



Step 2

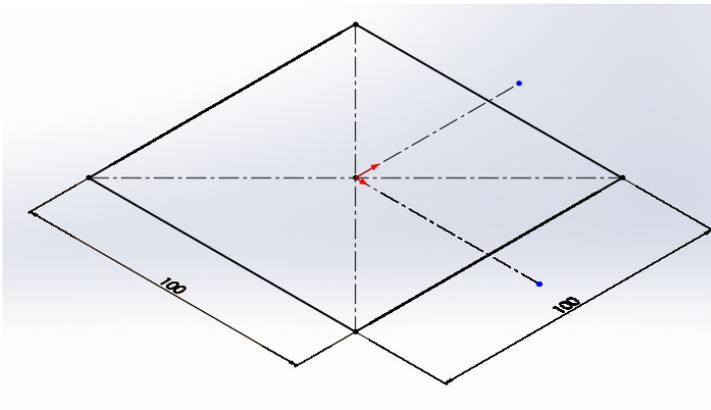


Step 3

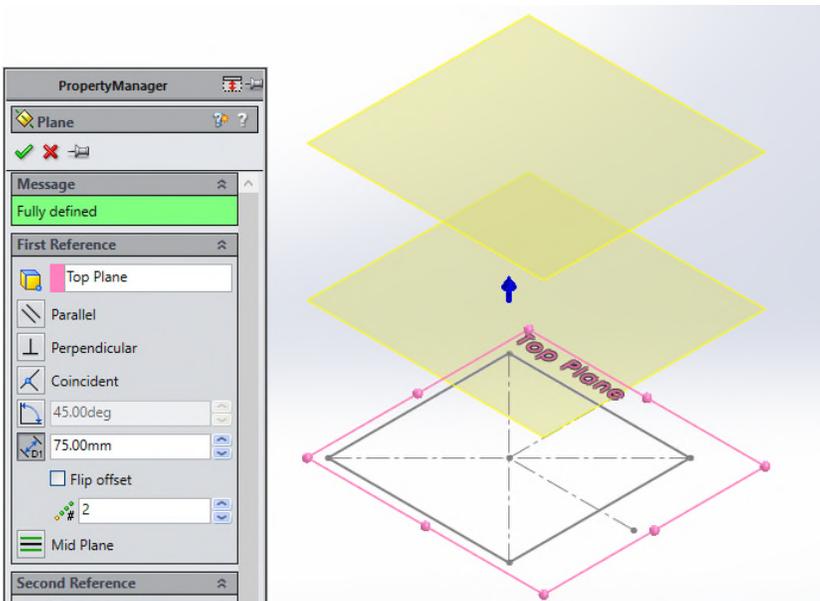


Step 4

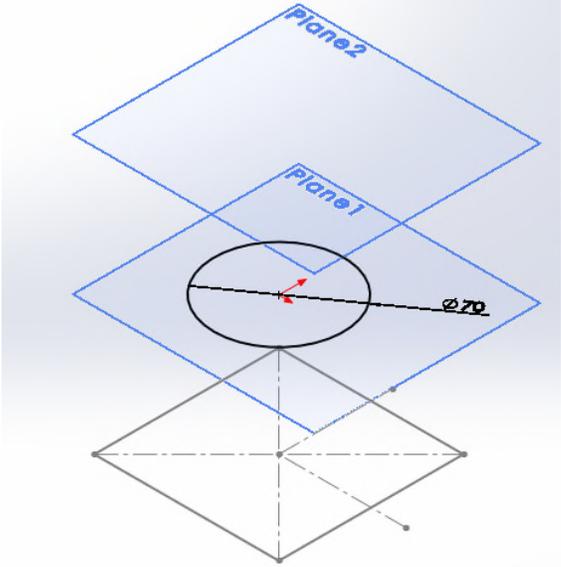
4. Problem 6-4



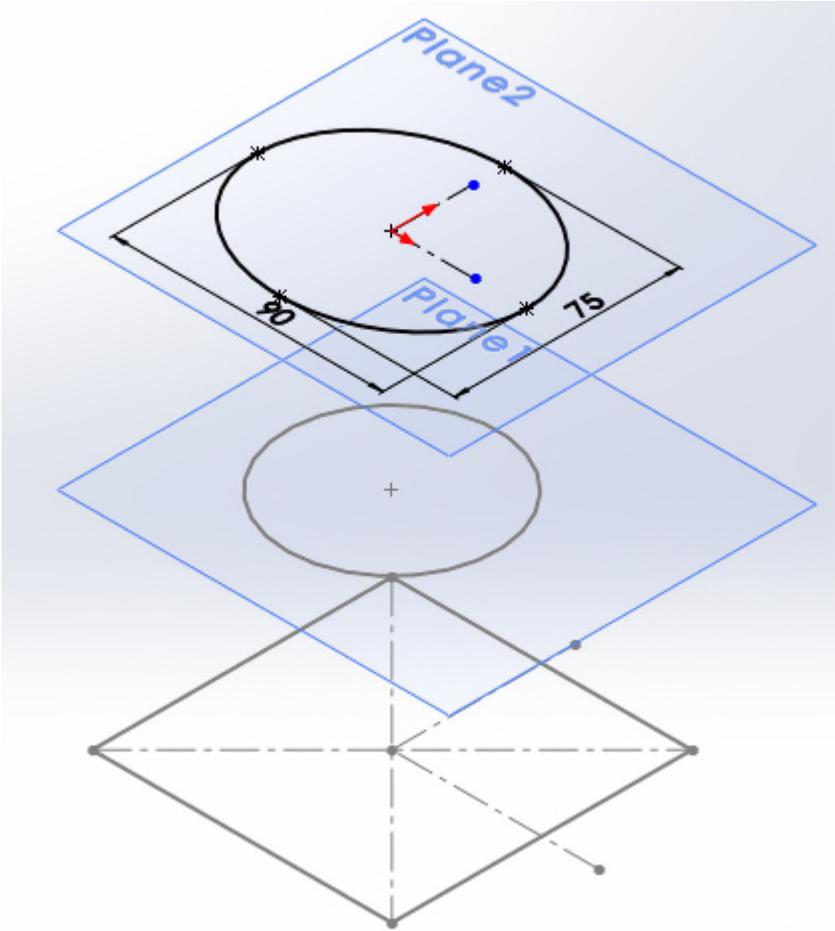
Step 1



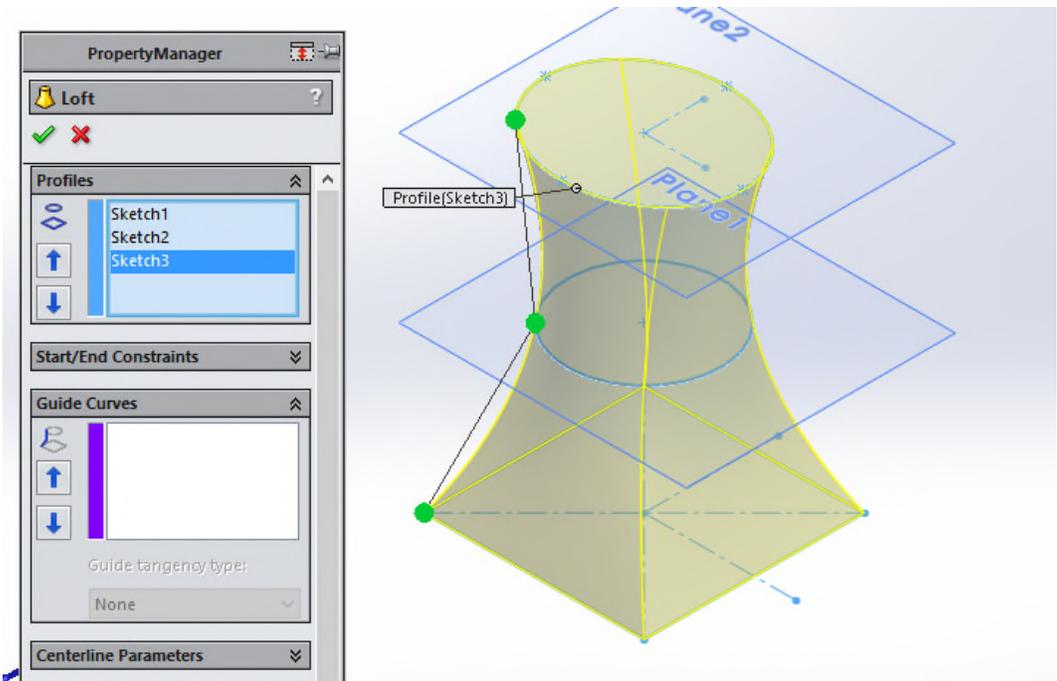
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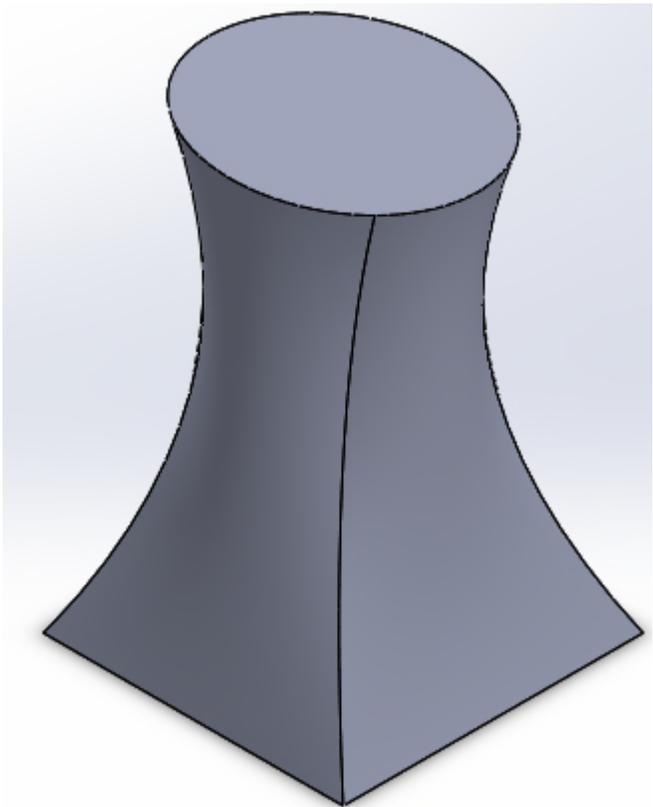
Step 3



Step 4



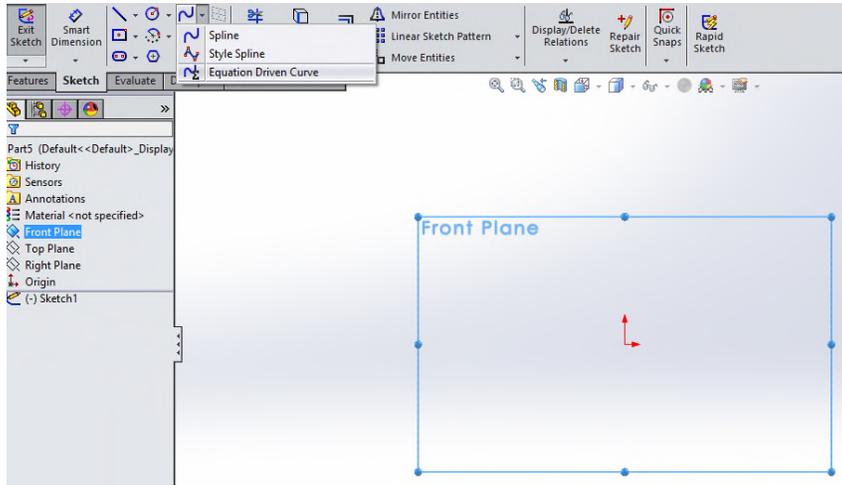
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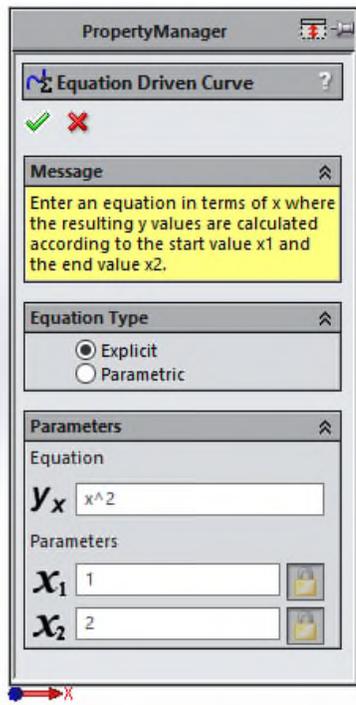
Step 6

Chapter 7: Part Modeling with Equation Driven Curves

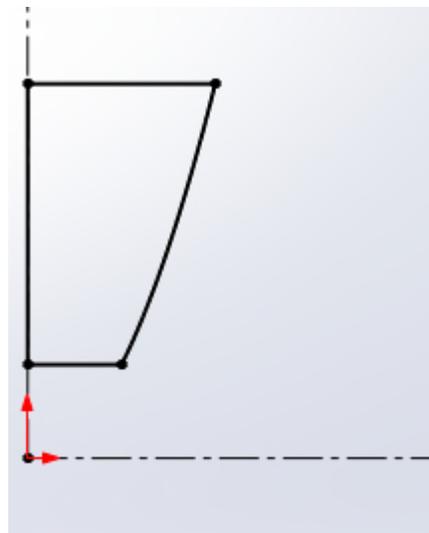
1. Problem 7-1



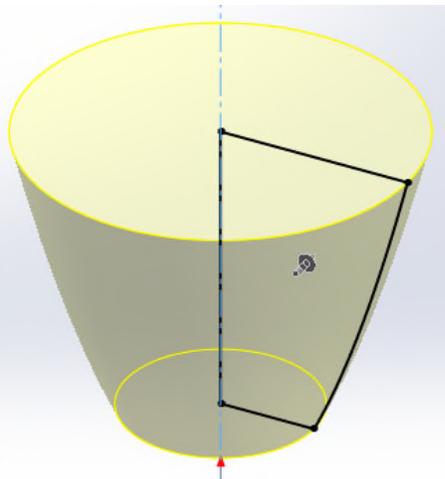
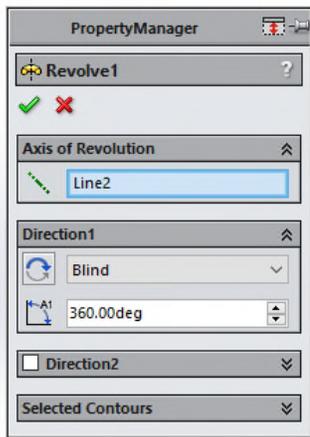
Step 1



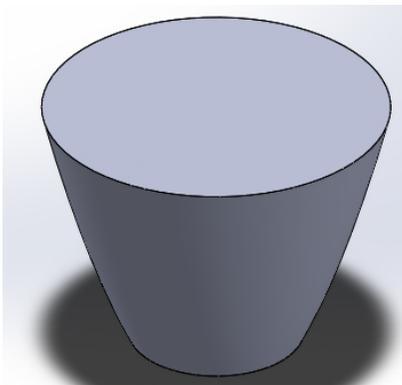
Step 2



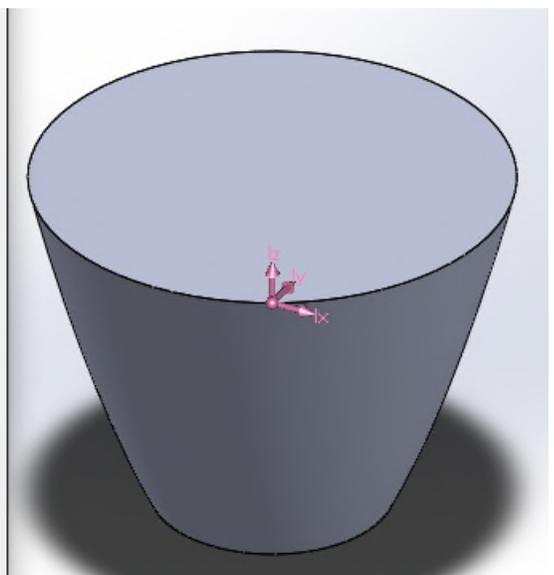
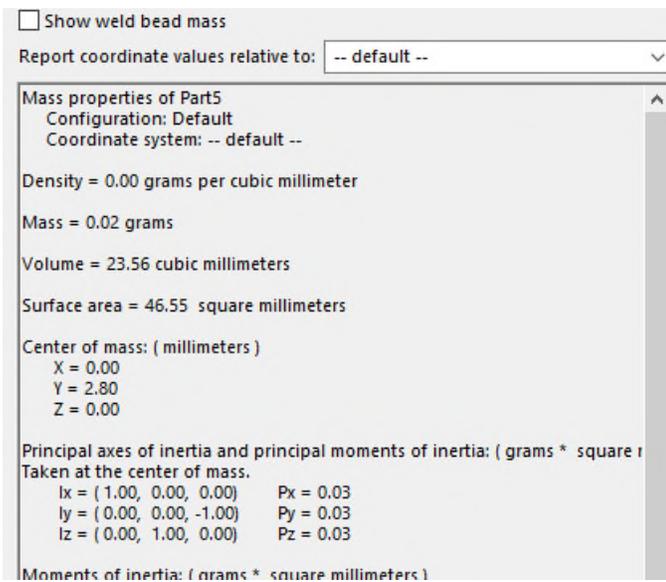
Step 3



Step 4

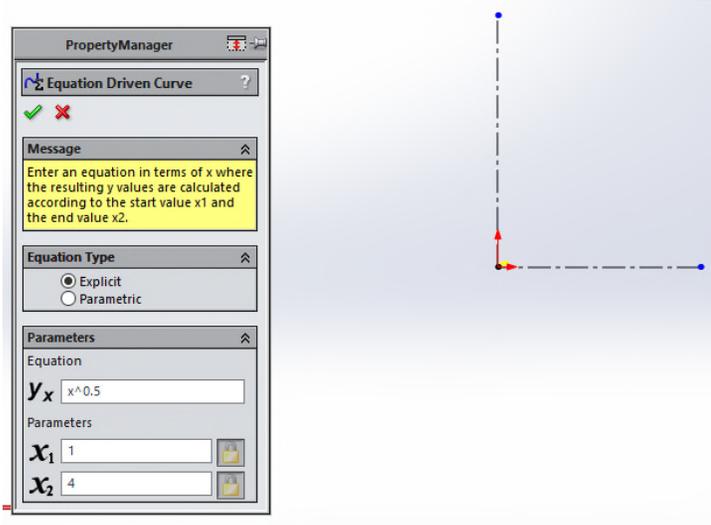


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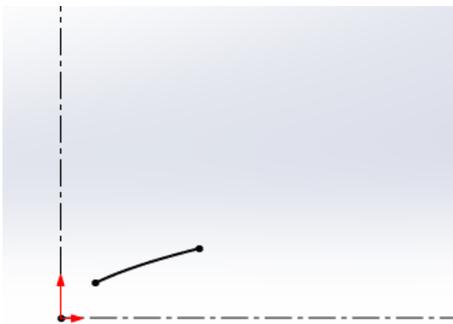


Step 6

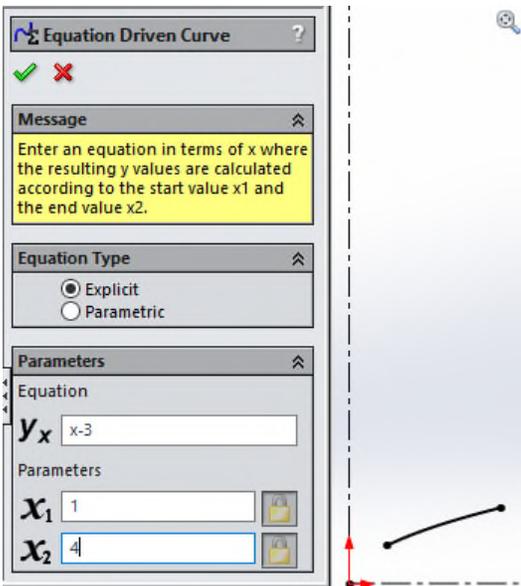
2. Problem 7-2



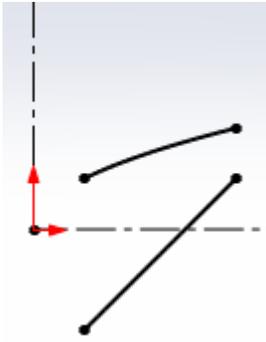
Step 1



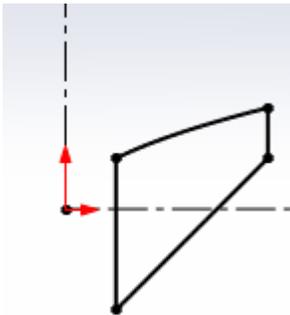
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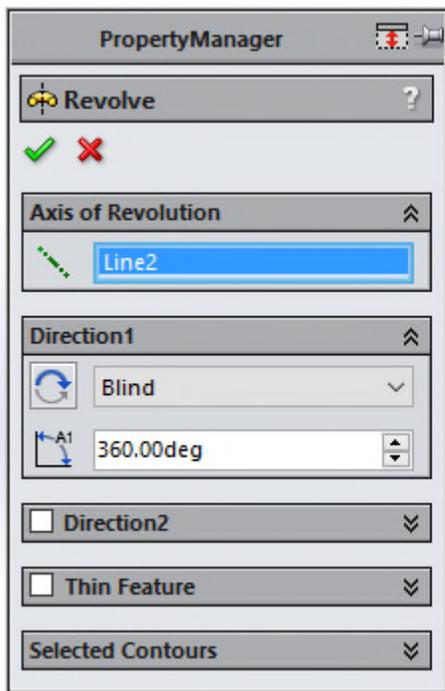
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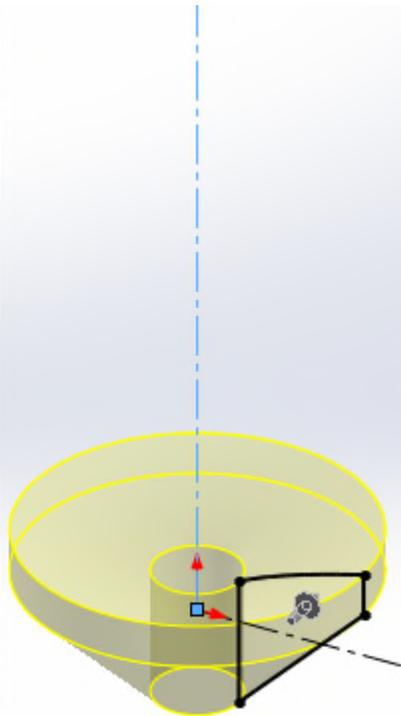
Step 4

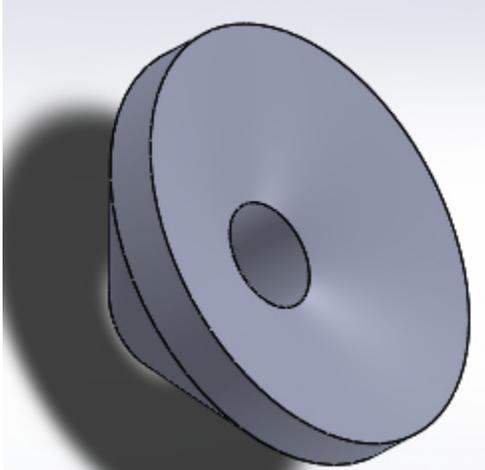


Step 5



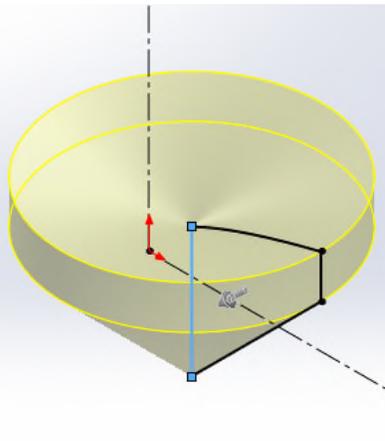
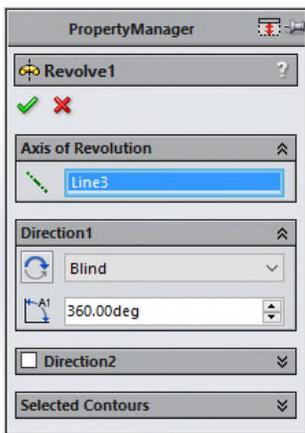
Step 6



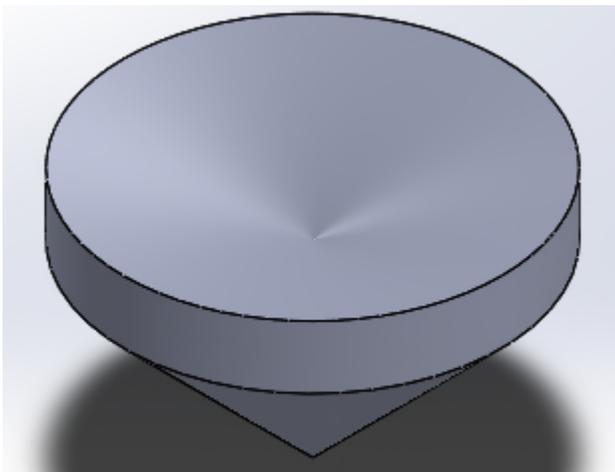


Step 7

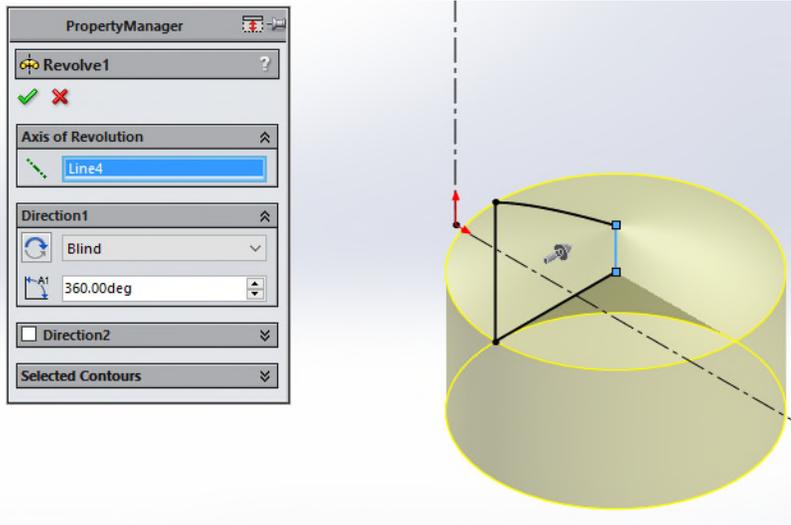
3. Problem 7-3



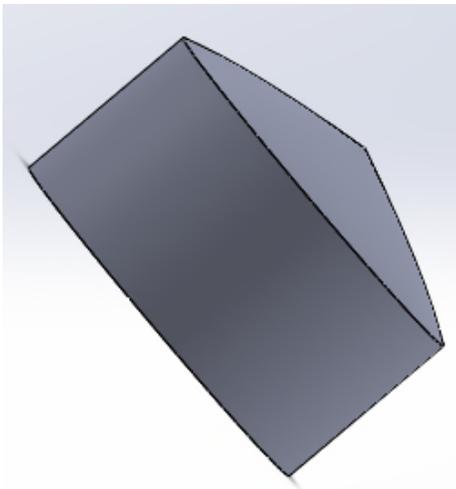
Step 1



Step 2

4. Problem 7-4

Step 1



Step 2

5. Problem 7-5**Question 2**

Volume = 87.36 cubic millimeters

Surface area = 160.04 square millimeters

Question 3

Volume = 48.60 cubic millimeters

Surface area = 88.35 square millimeters

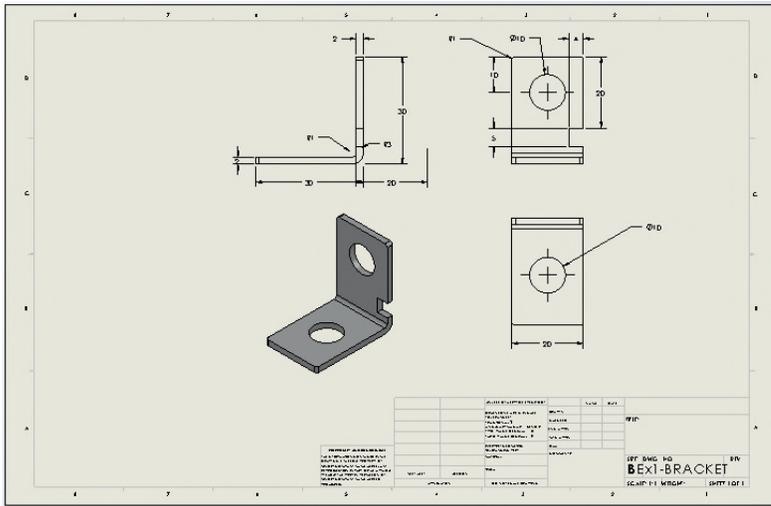
Question 4

Volume = 67.64 cubic millimeters

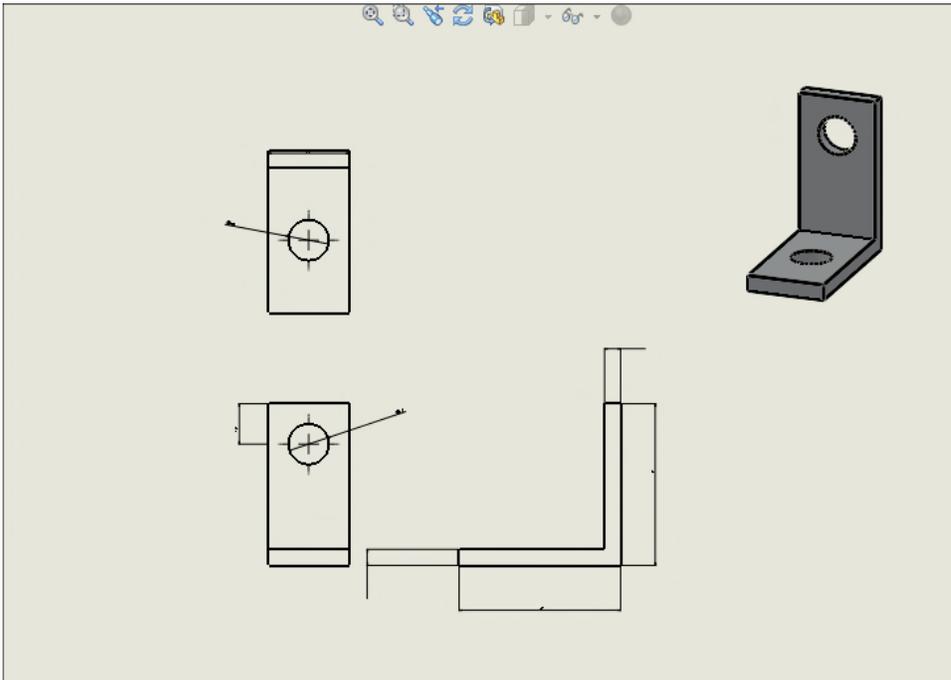
Surface area = 126.73 square millimeters

Chapter 9: Part and Assembly Drawings—CSWA Preparations

1. Problem 9-1



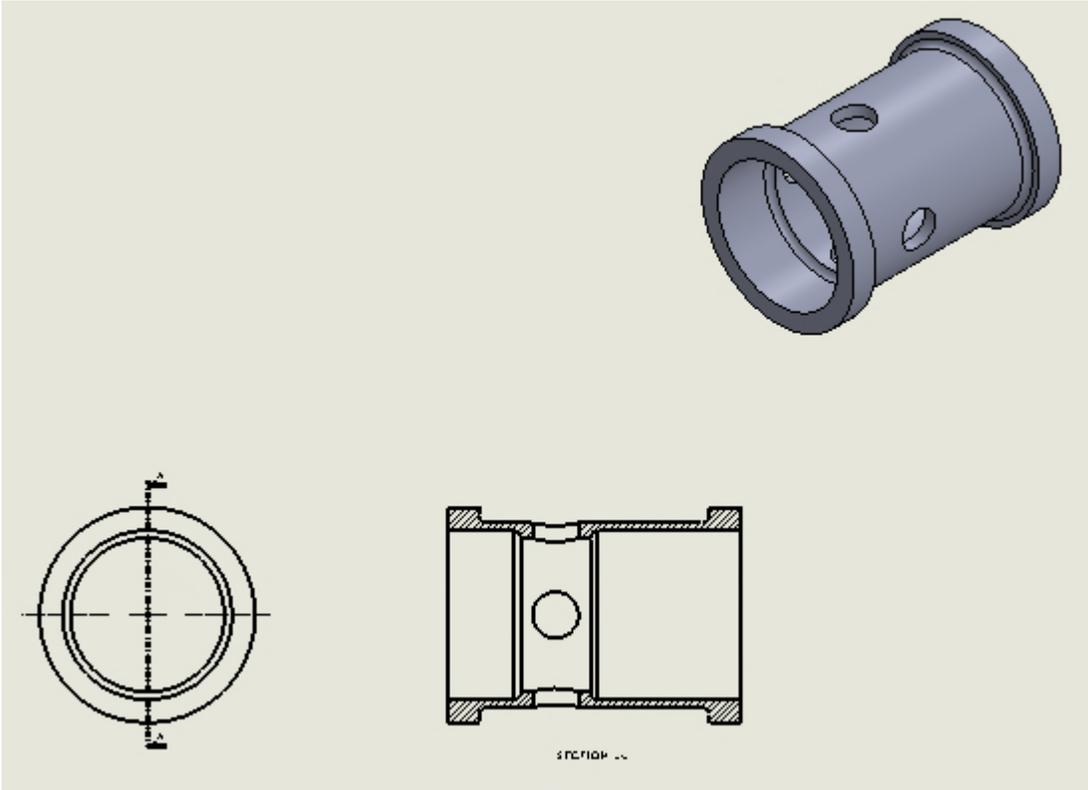
2. Problem 9-2



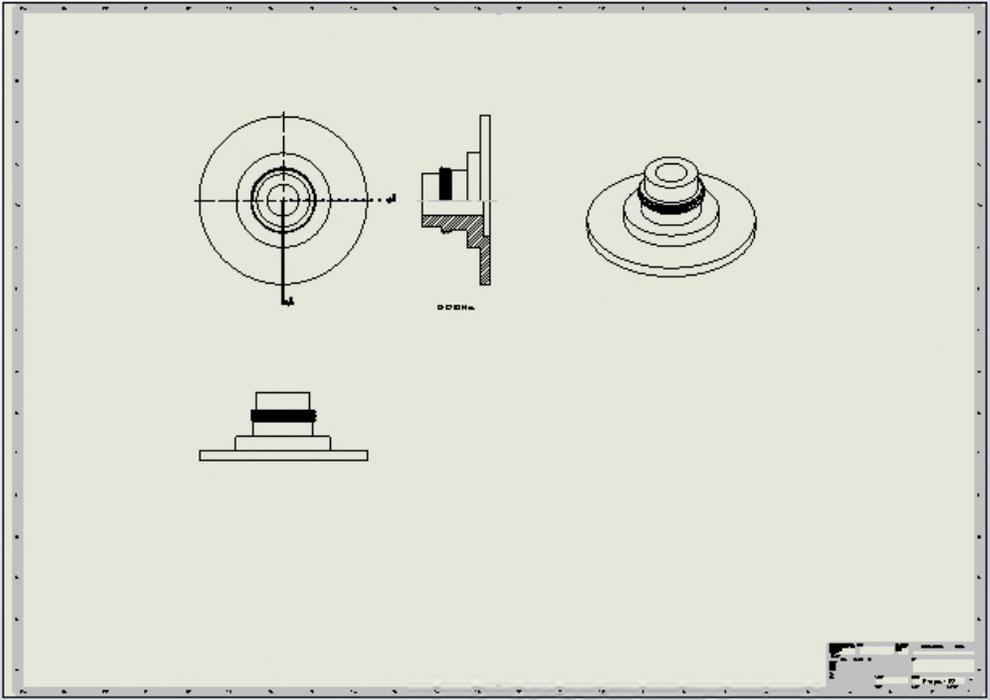
3. Problem 9-3

The views are all shown in the chapter.

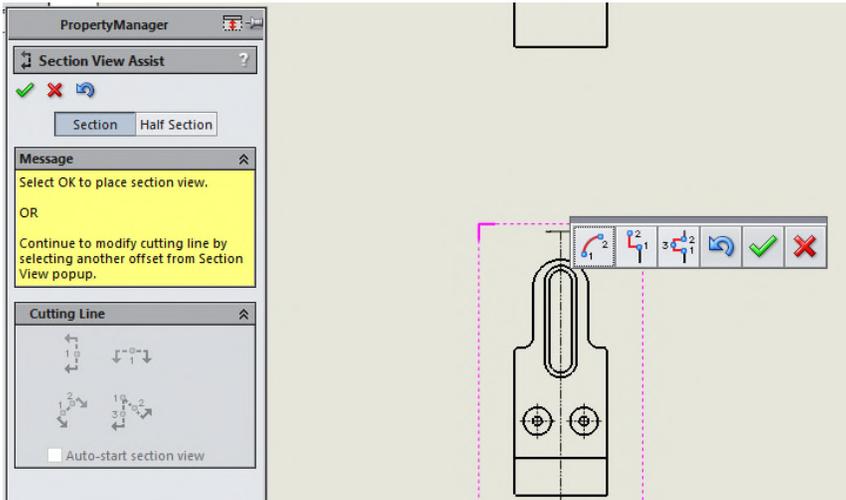
4. Project P1



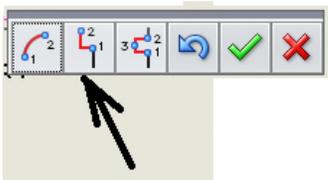
5. Project P2



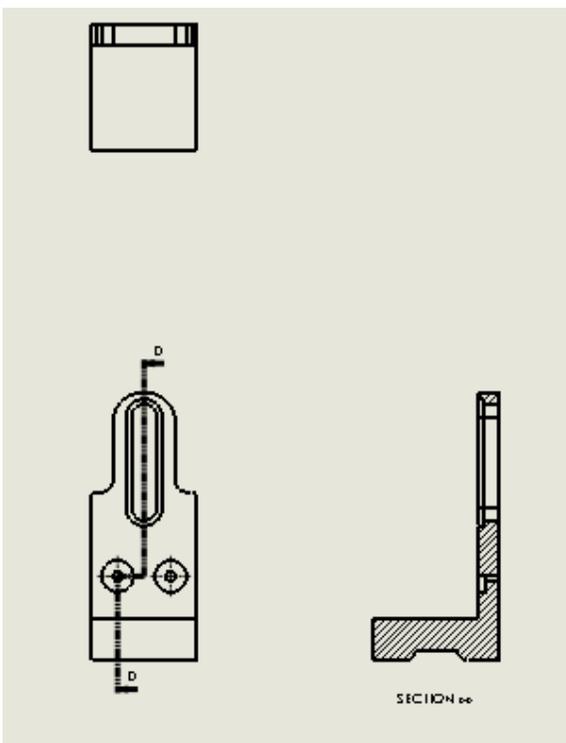
6. Project P3



Step 1



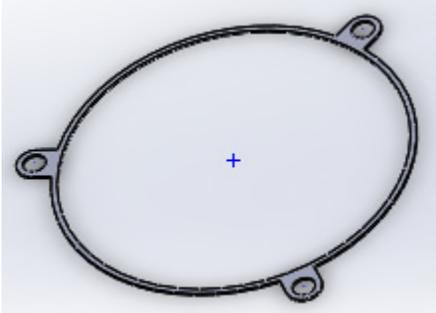
Step 2: Select the option pointed to, and click center of left circle(s)



Step 3

Chapter 11: Top-Down Design

1. Problem 11-1



Shape follows the solution given

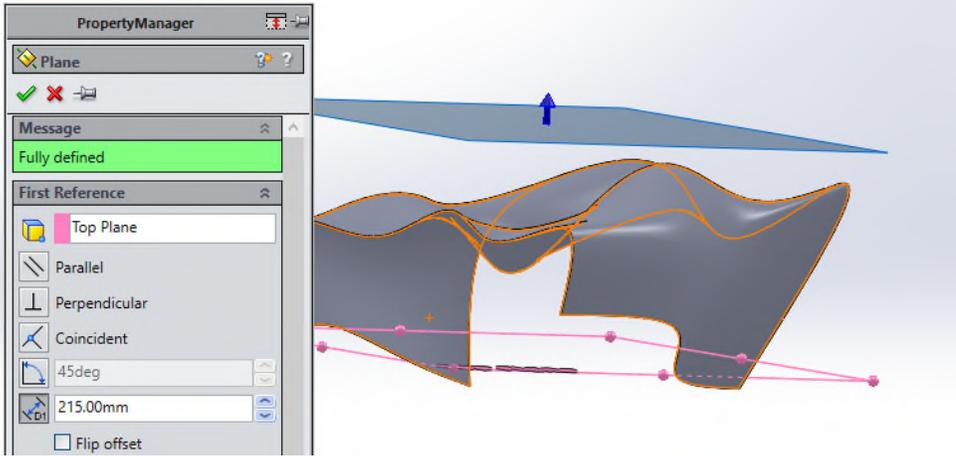
2. Problem 11-2



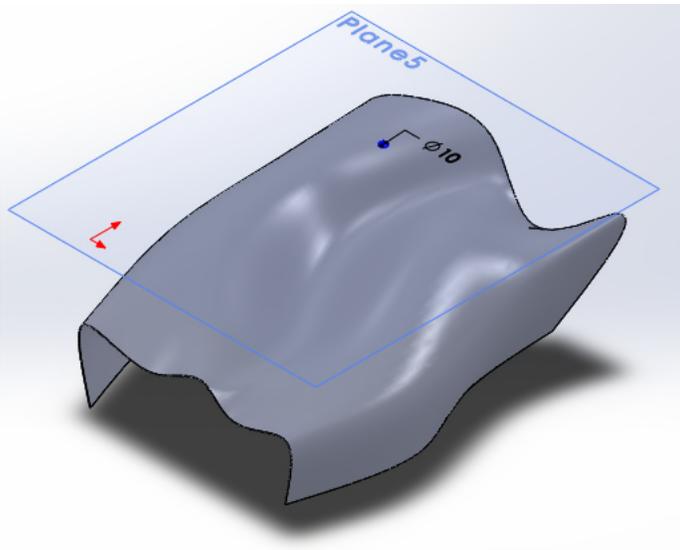
Shape follows the solution given

Chapter 12: Surface Modeling

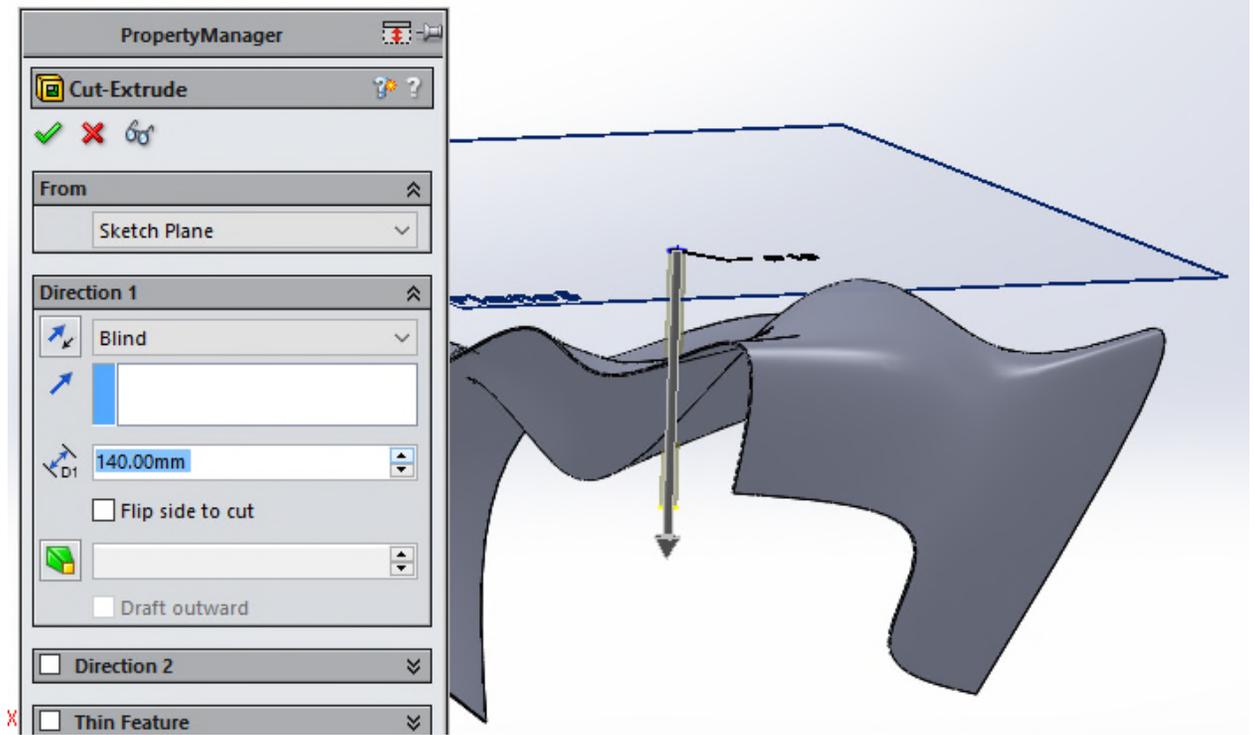
1. Problem 12-1



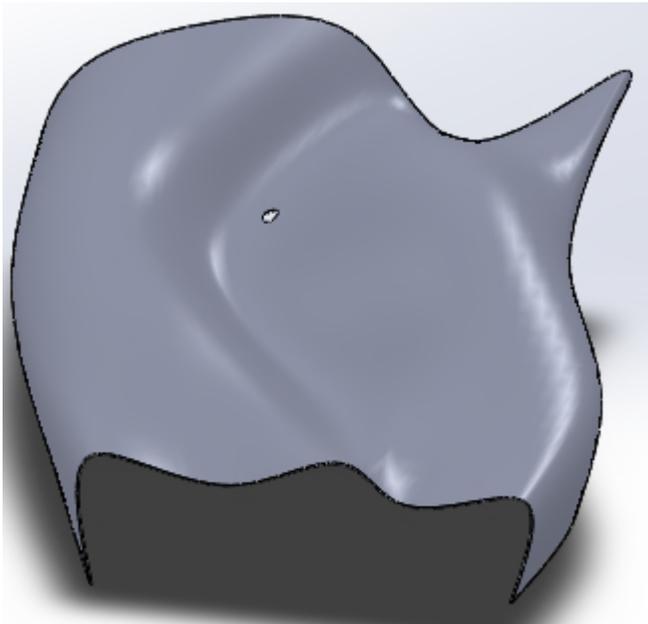
Step 1



Step 2

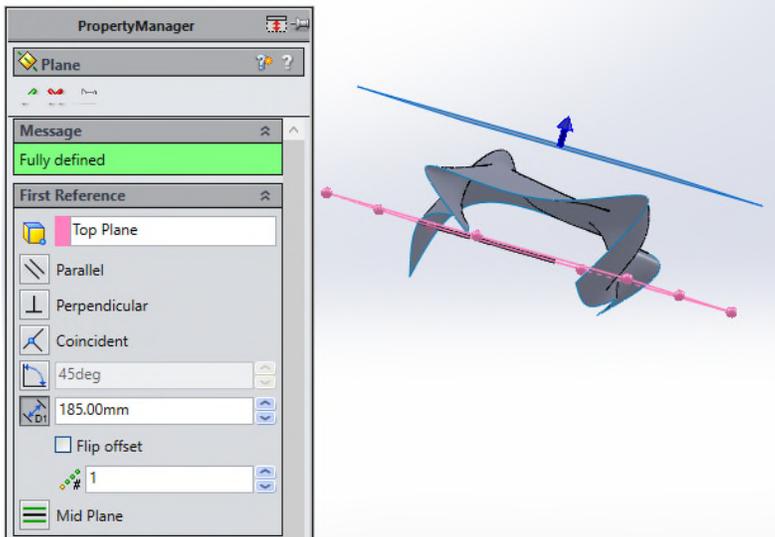


Step 3

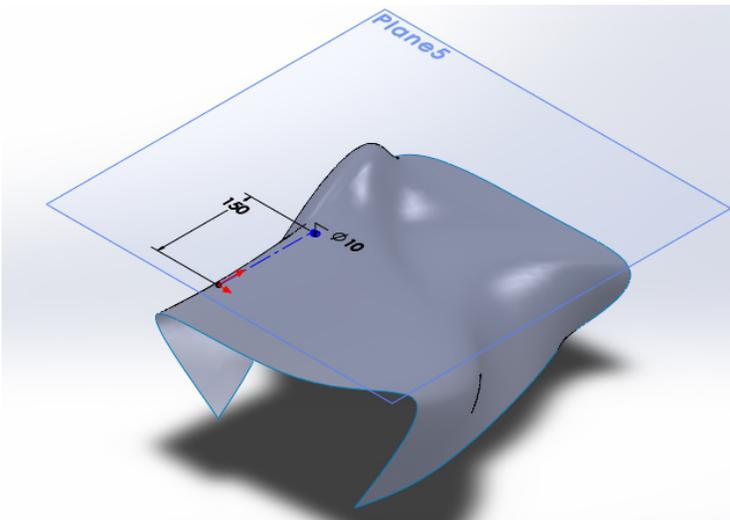


Step 4

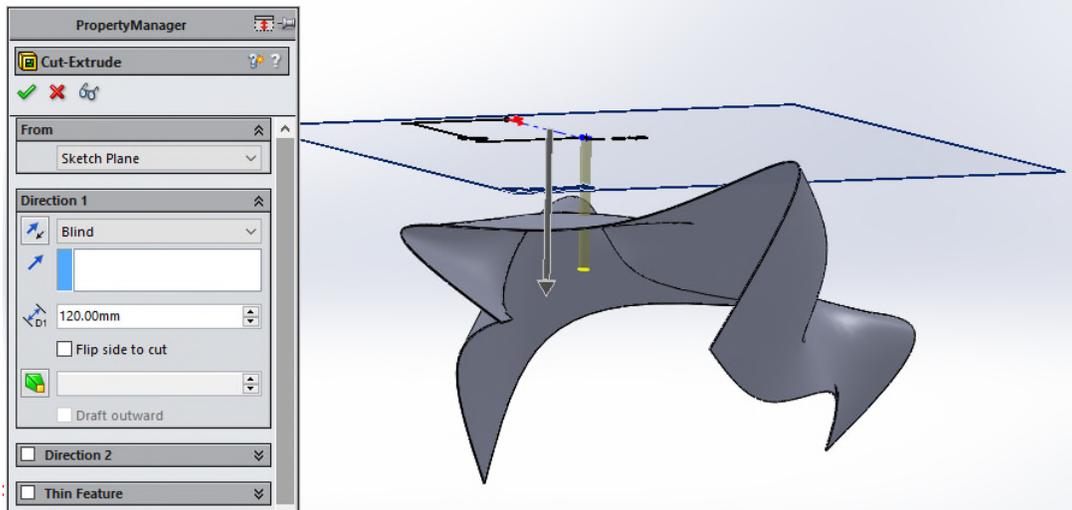
2. Problem 12-2



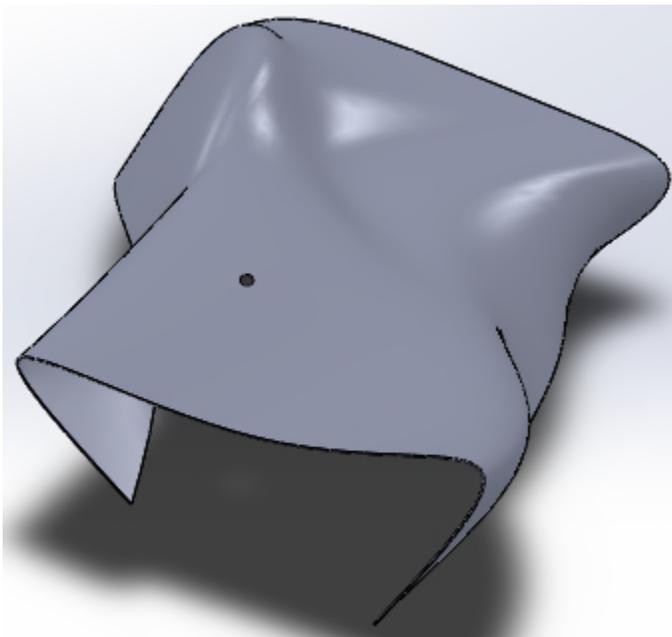
Step 1



Step 2



Step 3



Step 4

3. Problem 12-3

Used for patching surfaces

Chapter 13: Tool Boxes and Design Libraries

Projects 1—6 are to be carried out as projects based on the content of chapter 13

Chapter 15: Tool Boxes and Design Libraries

Projects 1—6 are to be carried out as projects based on the content of chapter 13

1. Problem 15-1

Basic motion uses motors, springs, 3D contacts, and gravity (Physical Simulation); it does not use frames. Motion analysis is an Add-In to SolidWorks and it is the highest level of motion study.

2. Problem 15-2

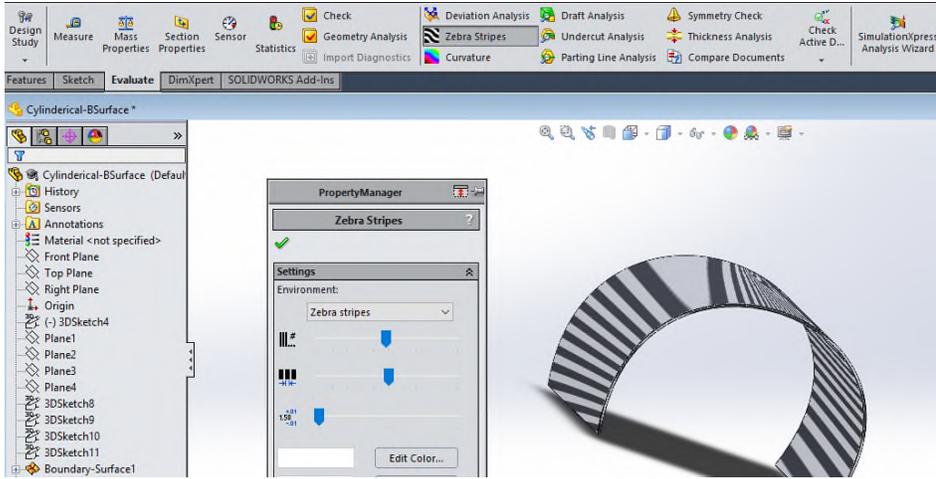
No

3. Problem 15-3

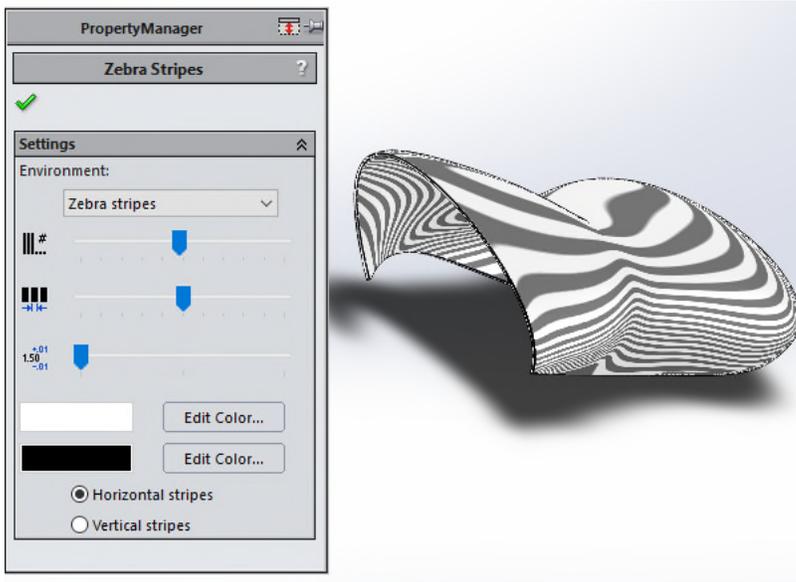
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Chapter 16: Rendering

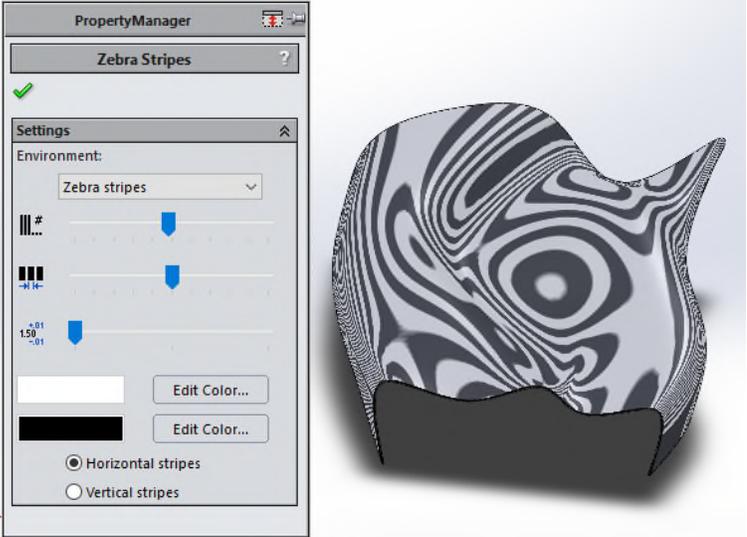
1. Problem 16-1



2. Problem 16-2

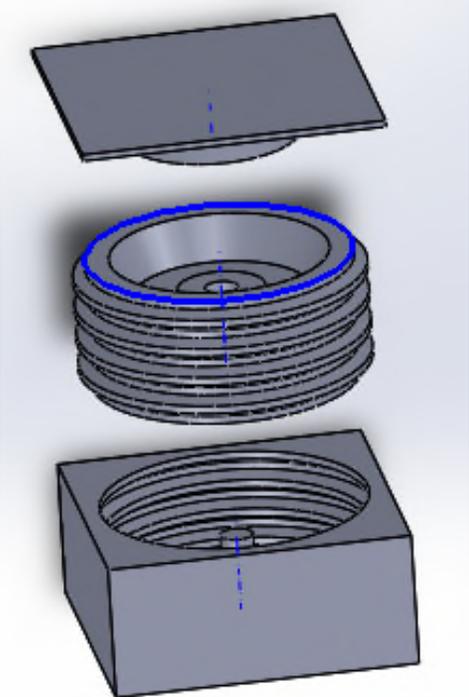


3. Problem 16-3

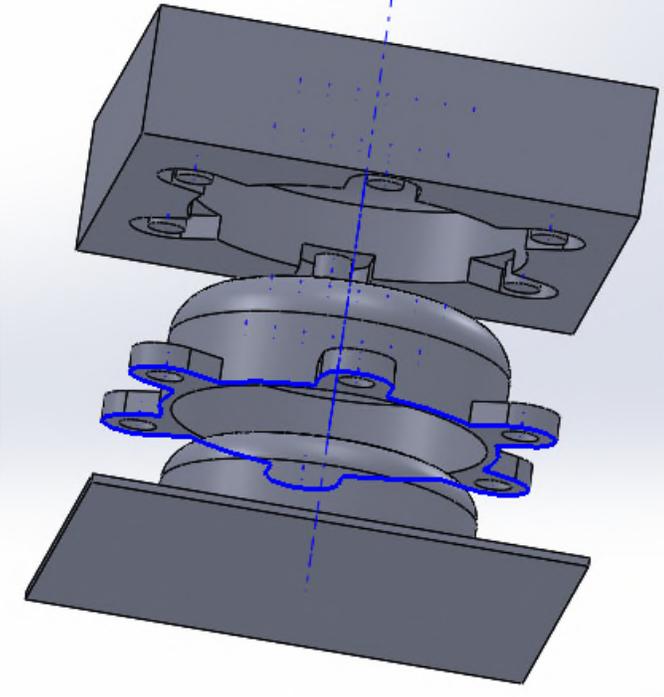


Chapter 17: Mold Design

1. Problem 17-1

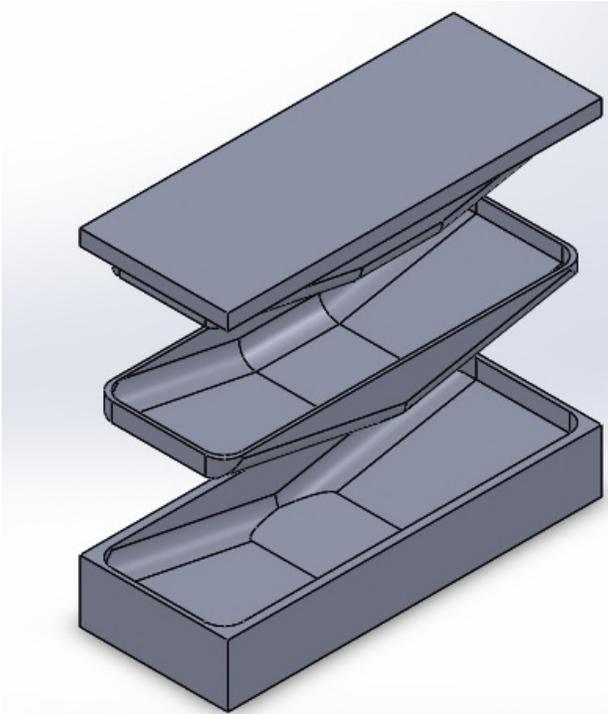


2. Problem 17-2



3. Problem 17-3

4. Problem 17-4



Chapter 18: Sheet Metal Parts—I

1. Problem 18-1

Repeat problem

2. Problem 18-2

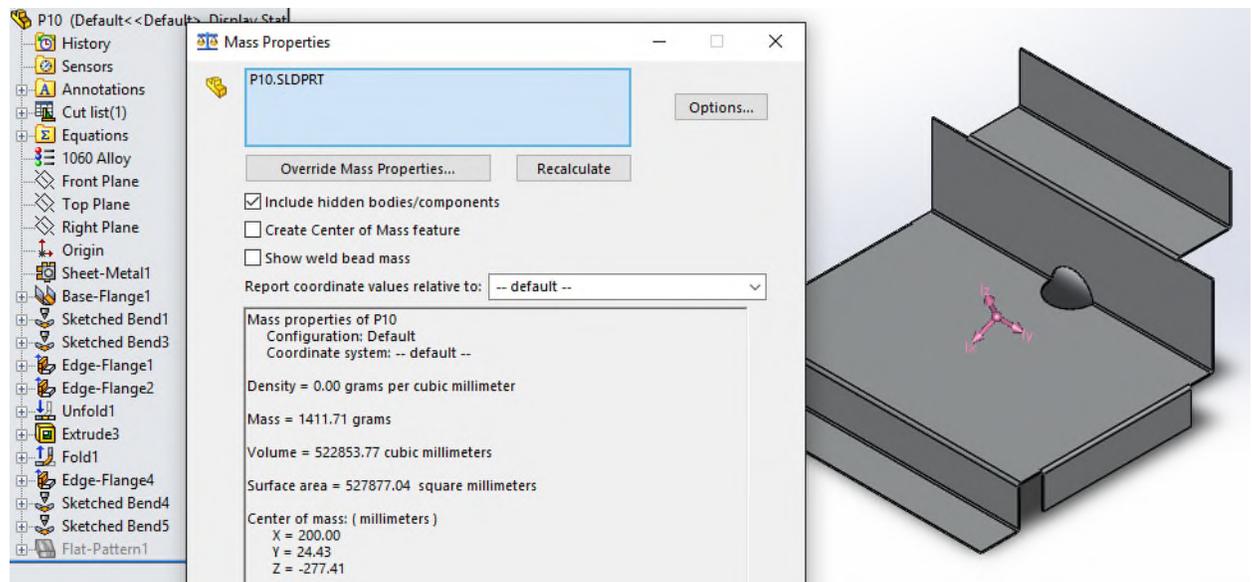
Repeat problem

3. Problem 18-3

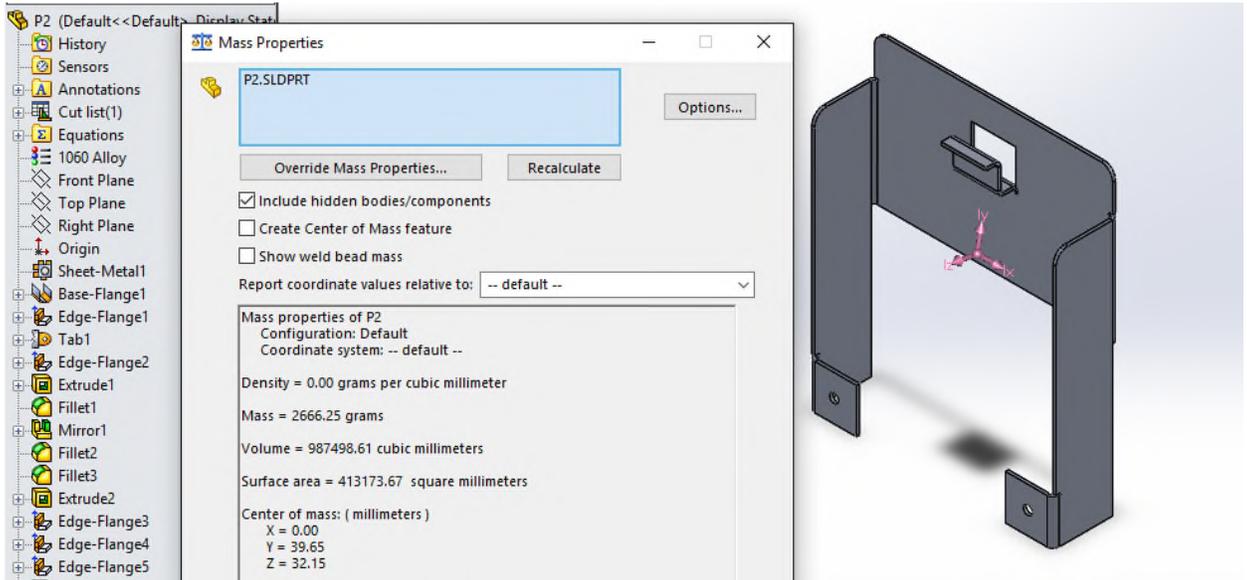
Repeat problem

Chapter 19: Sheet Metal Parts—II

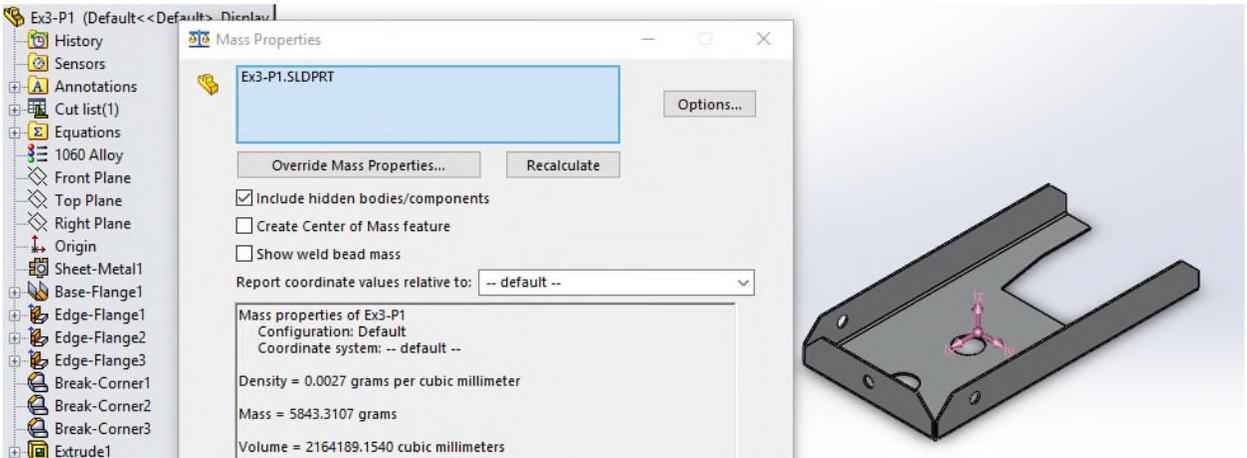
1. Problem 19-1



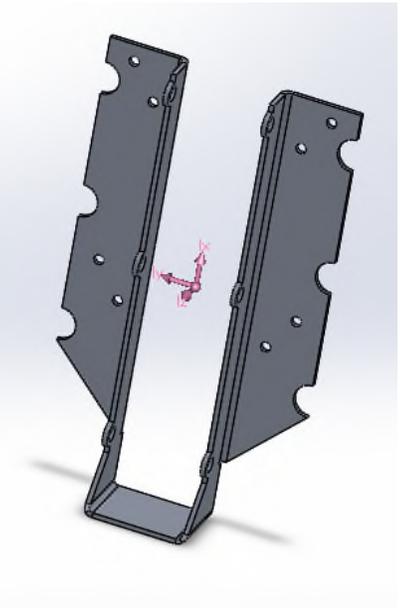
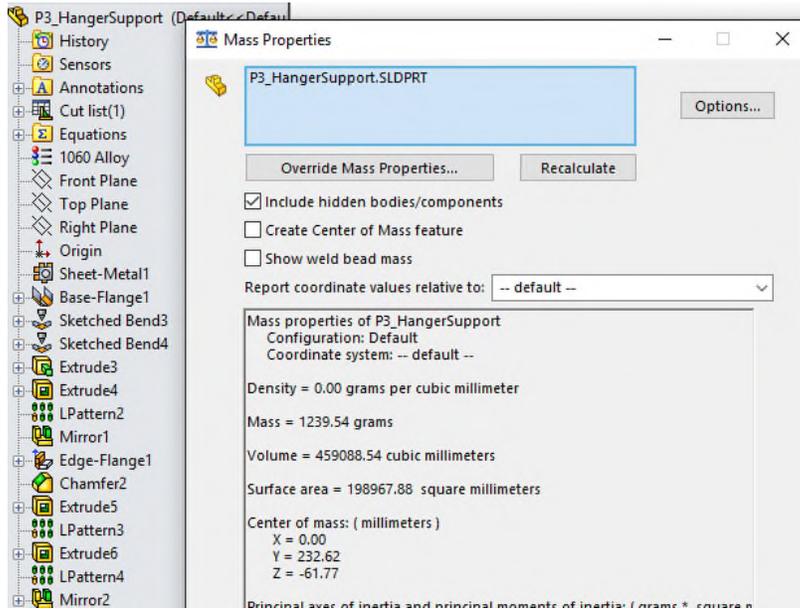
2. Problem 19-2



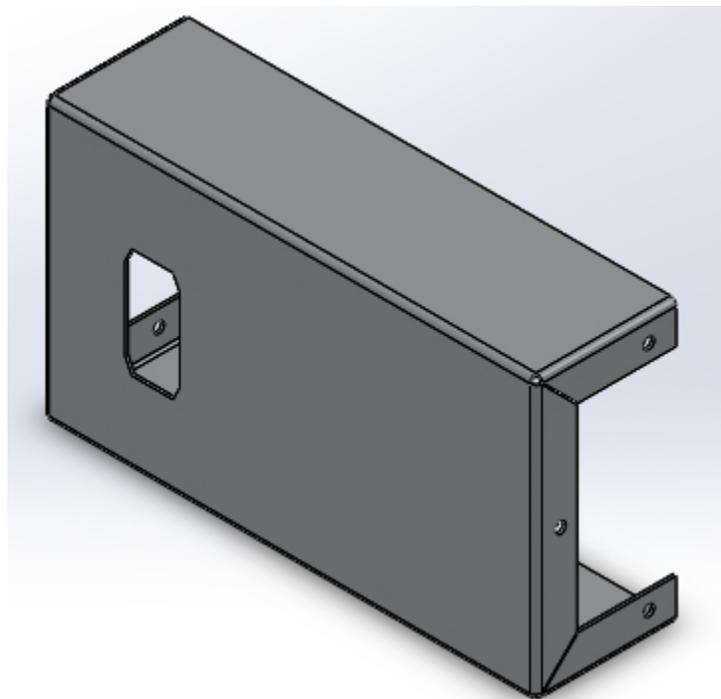
3. Problem 19-3



4. Problem 19-4



5. Problem 19-5



Chapter 20: Weldments

1—9 are to be carried out as projects based on the content of chapter 20

Chapter 22: Power Transmission Elements

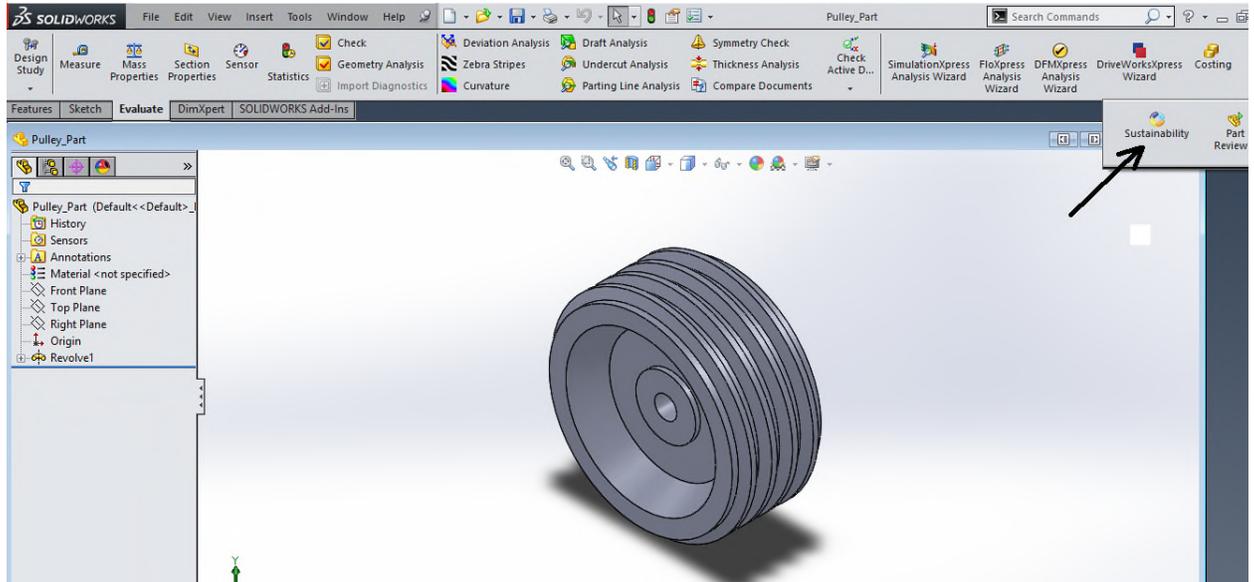
Projects 1—3 are to be carried out as projects based on the content of chapter 22

Chapter 23: Cam Design

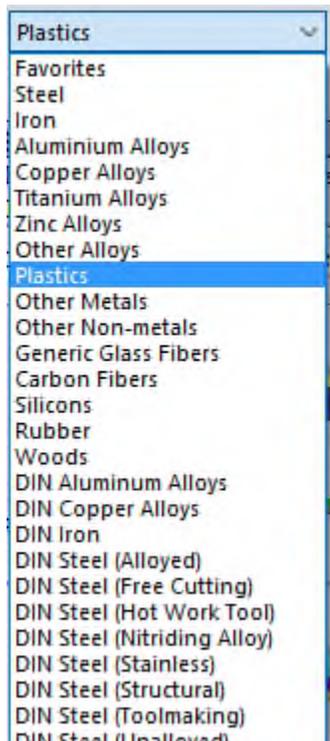
Projects 1—2 are to be carried out as projects based on the content of chapter 23

Chapter 31: Sustainability Design for Parts

1. Problem 31-1



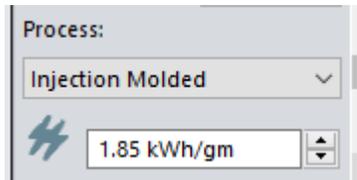
Step 1



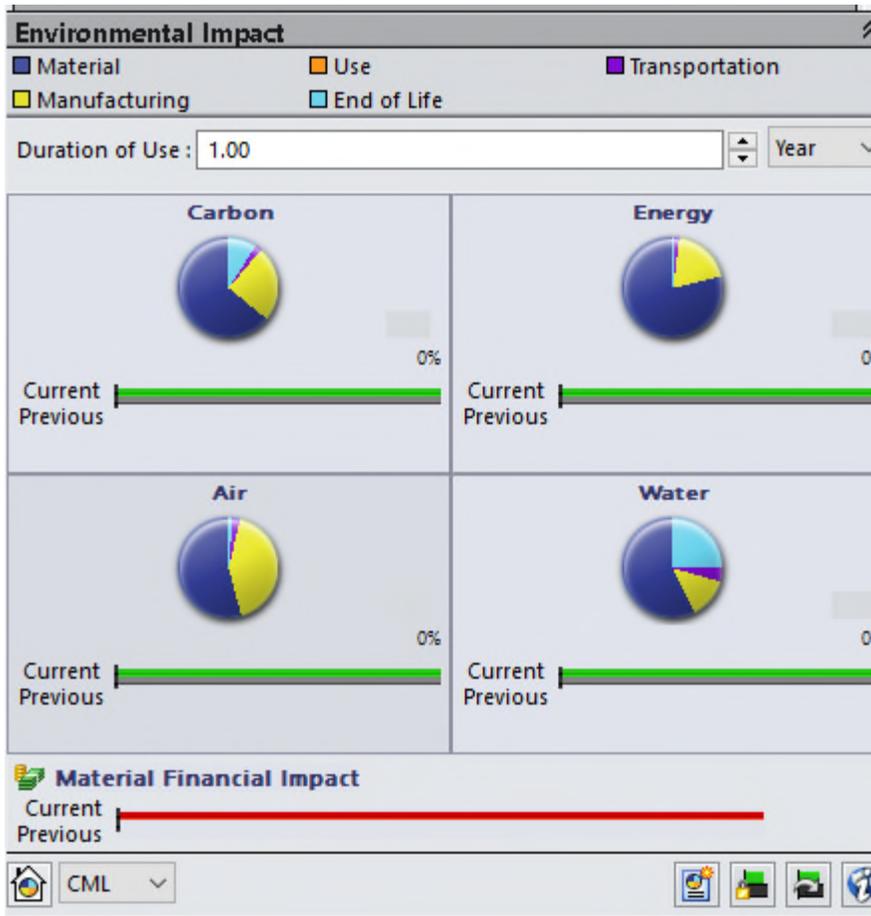
Step 2 Material



Step 3 Manufacturing



Step 4 Process



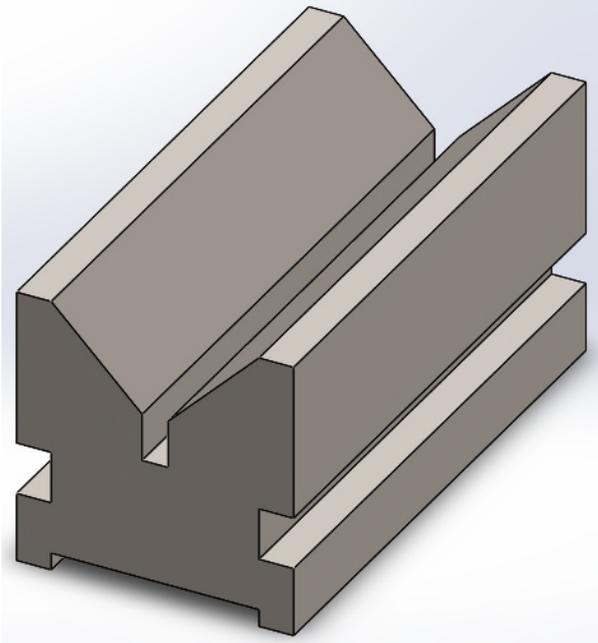
Step 5

2. Problem 31-2 to 13-4

Repeat problem with models opened

Chapter 33: Evaluating the Cost of Machined Parts

1. Problem 33-1

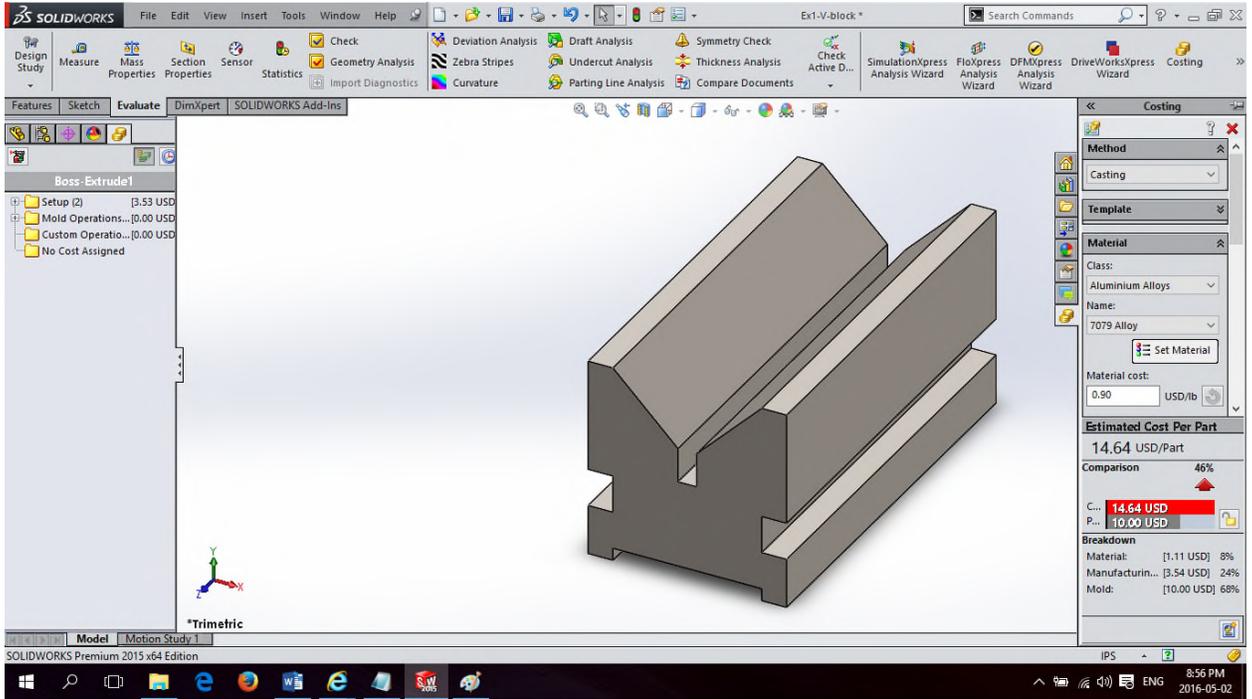


Step 1

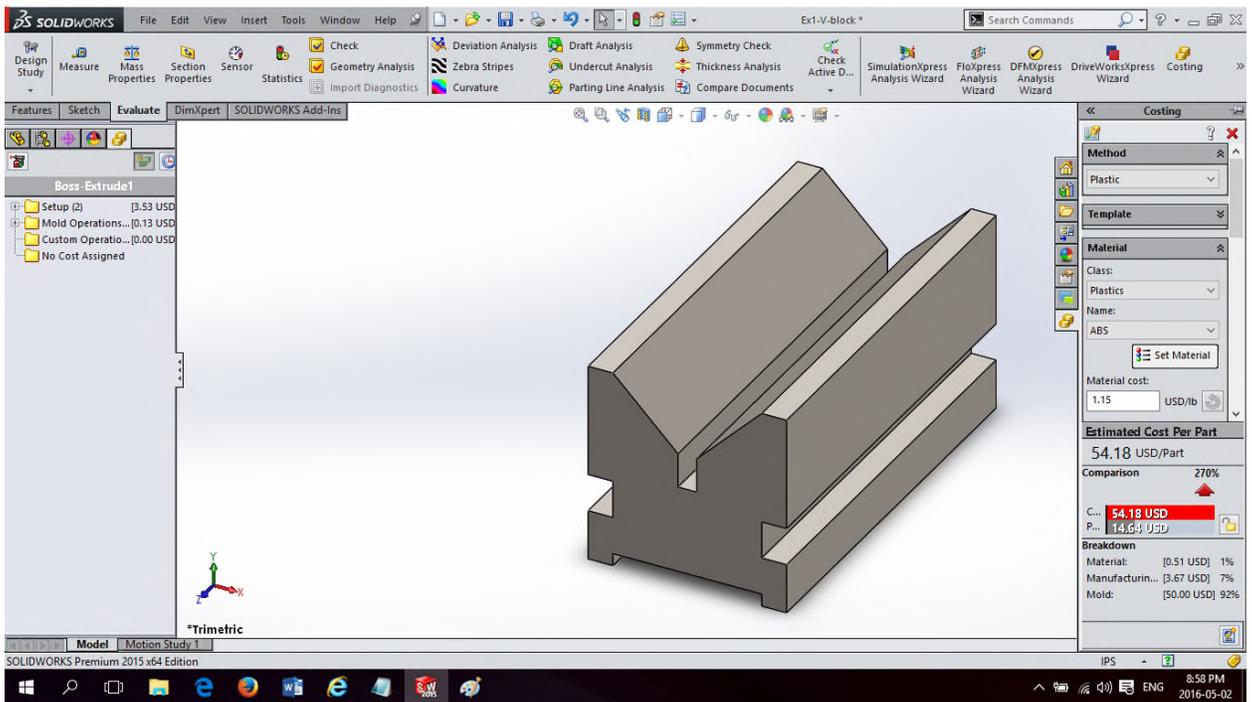
The screenshot shows the SolidWorks Costing tool interface. The main window displays a 3D model of the part with a teal-colored cost analysis overlay. The Costing tool is open on the right, showing a breakdown of costs for Machining Steel.

Category	Item	Cost (USD)	Percentage
Breakdown	Material	6.36	64%
	Manufacturin...	3.60	36%
	Total	9.96	
	Comparison	-0%	
Material	Class	Steel	
	Name	Plain Carbon Steel	
Material cost	1.41 USD/lb		
Estimated Cost Per Part	9.96 USD/Part		
Comparison	-0%		
Current Part	9.96 USD		
Previous Part	10.00 USD		

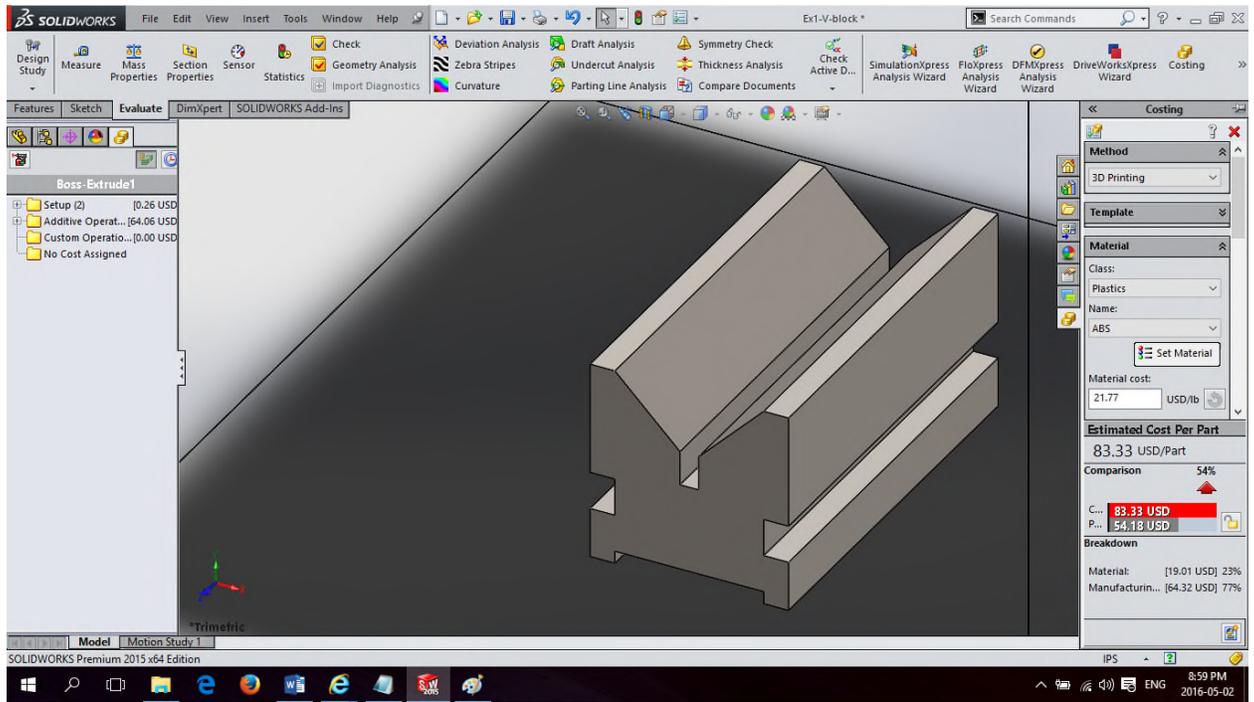
Machining: Steel



Casting: Aluminum

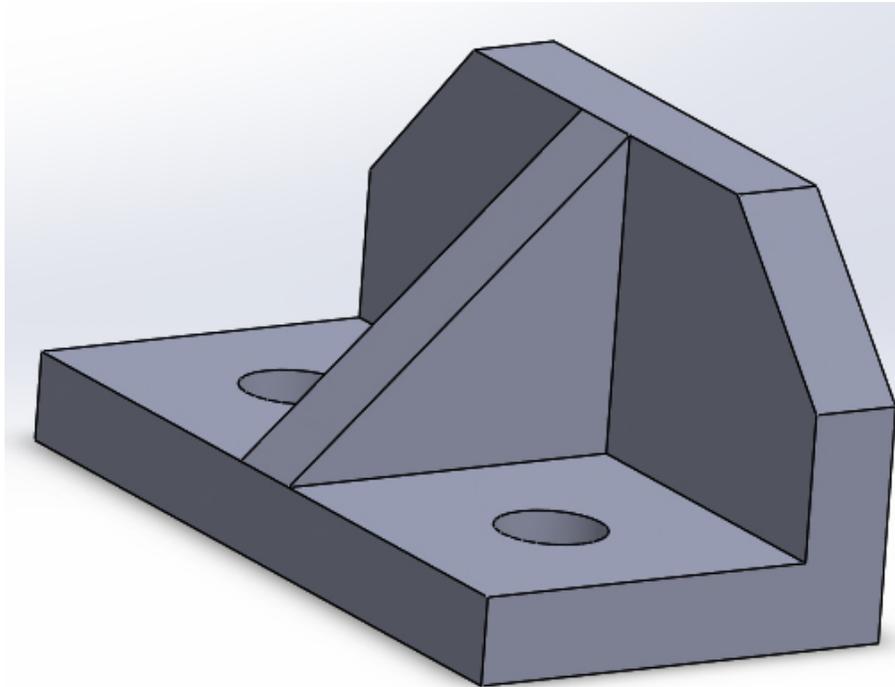


Injection Molding: Plastic

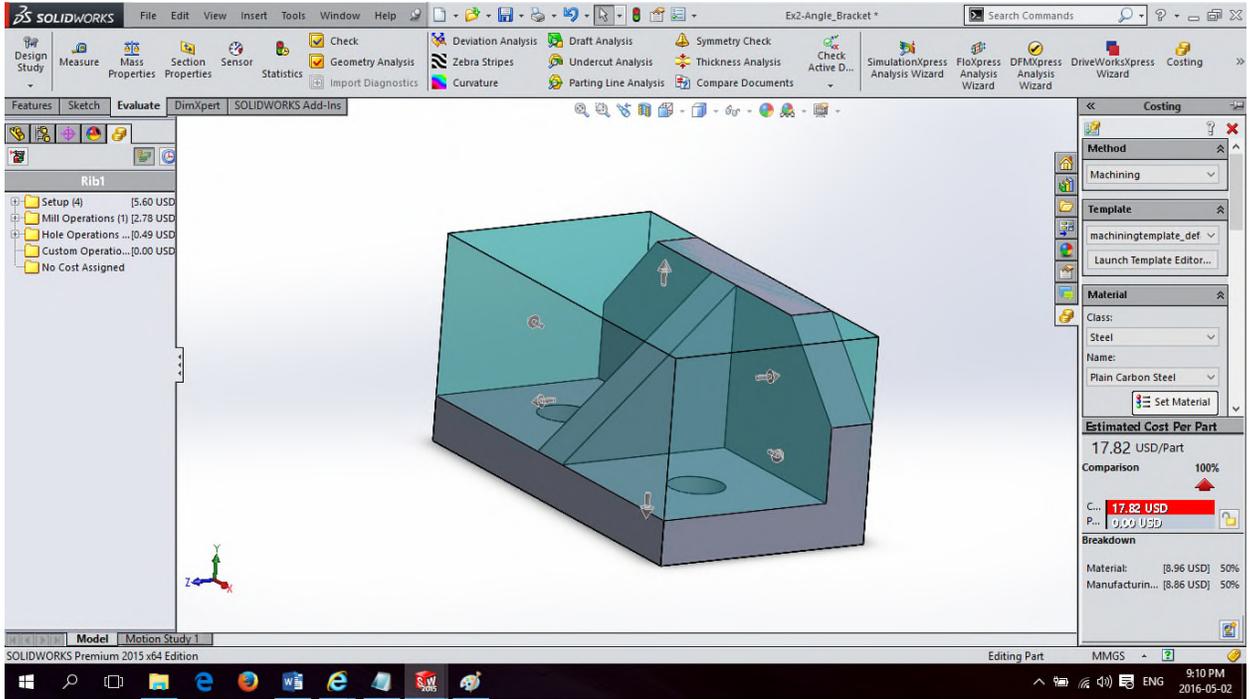


3D Printing: Plastic (ABS)

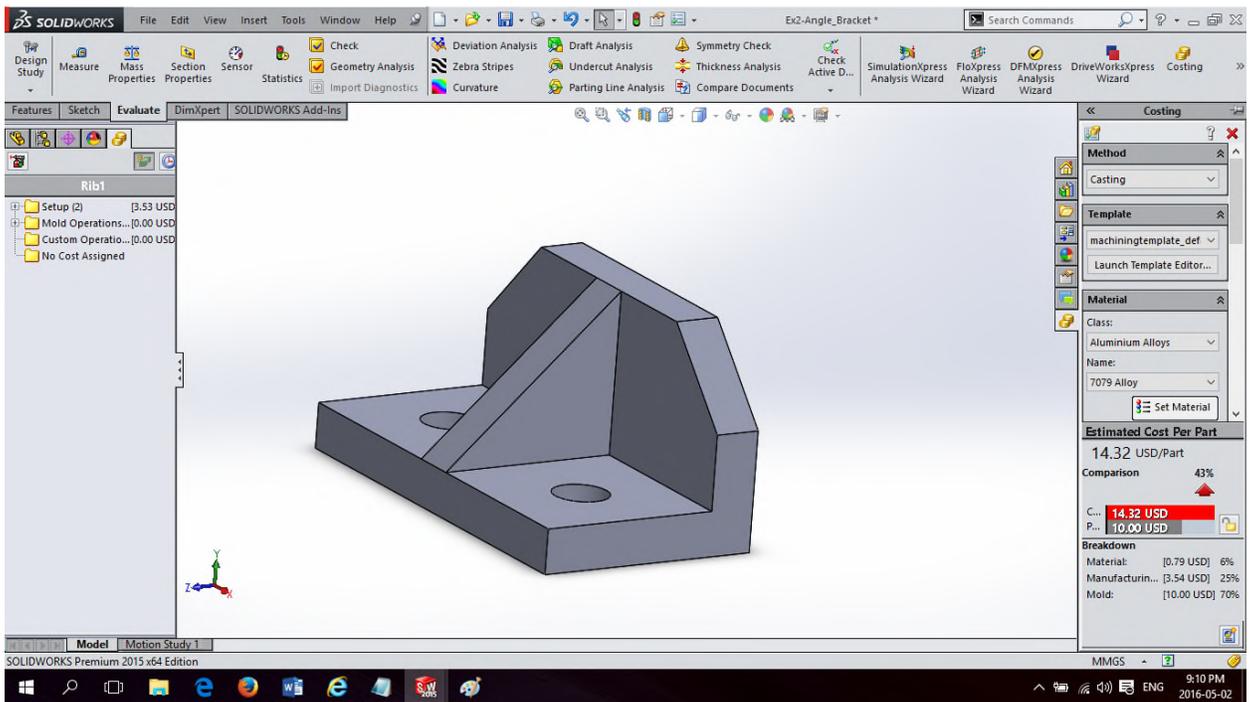
2. Problem 33-2



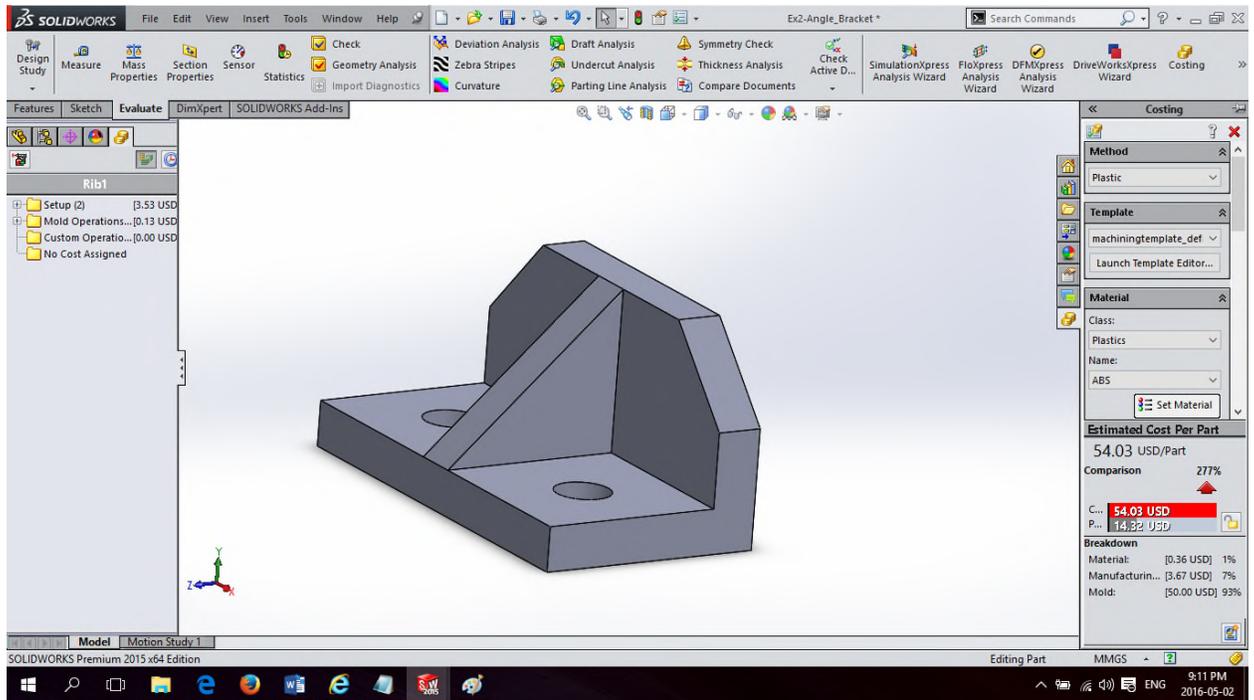
Step 1



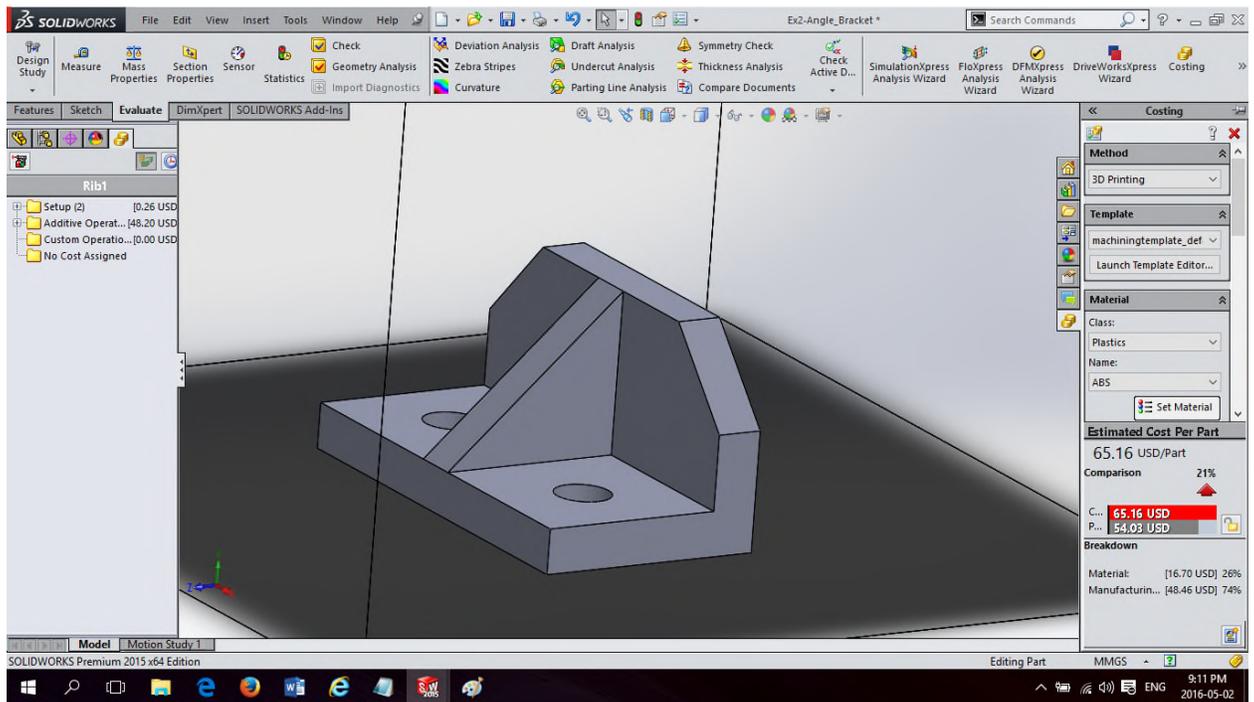
Machining: Steel



Casting: Aluminum

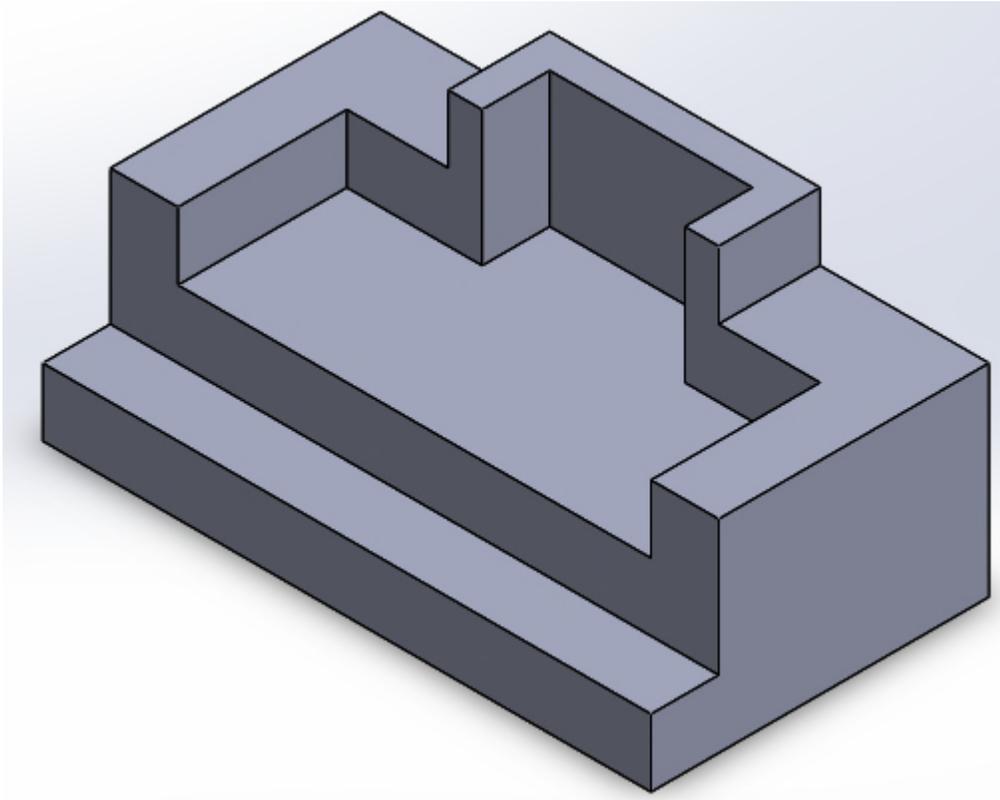


Injection Molding: Plastic

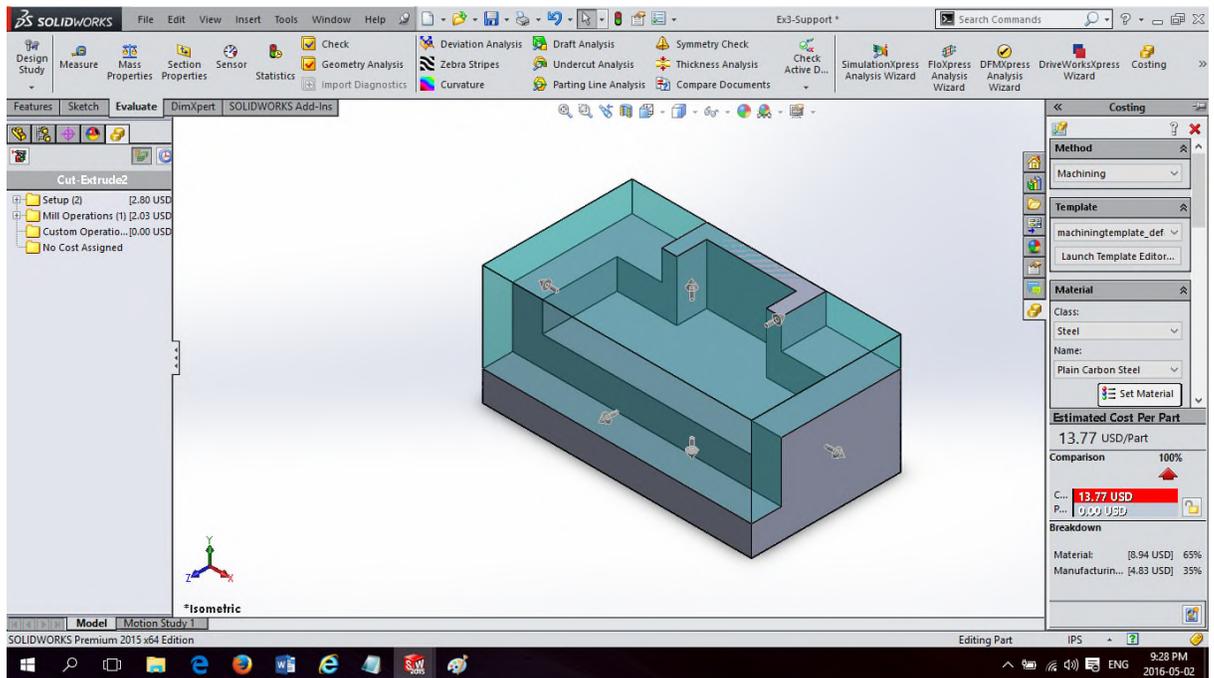


3D Printing: Plastic (ABS)

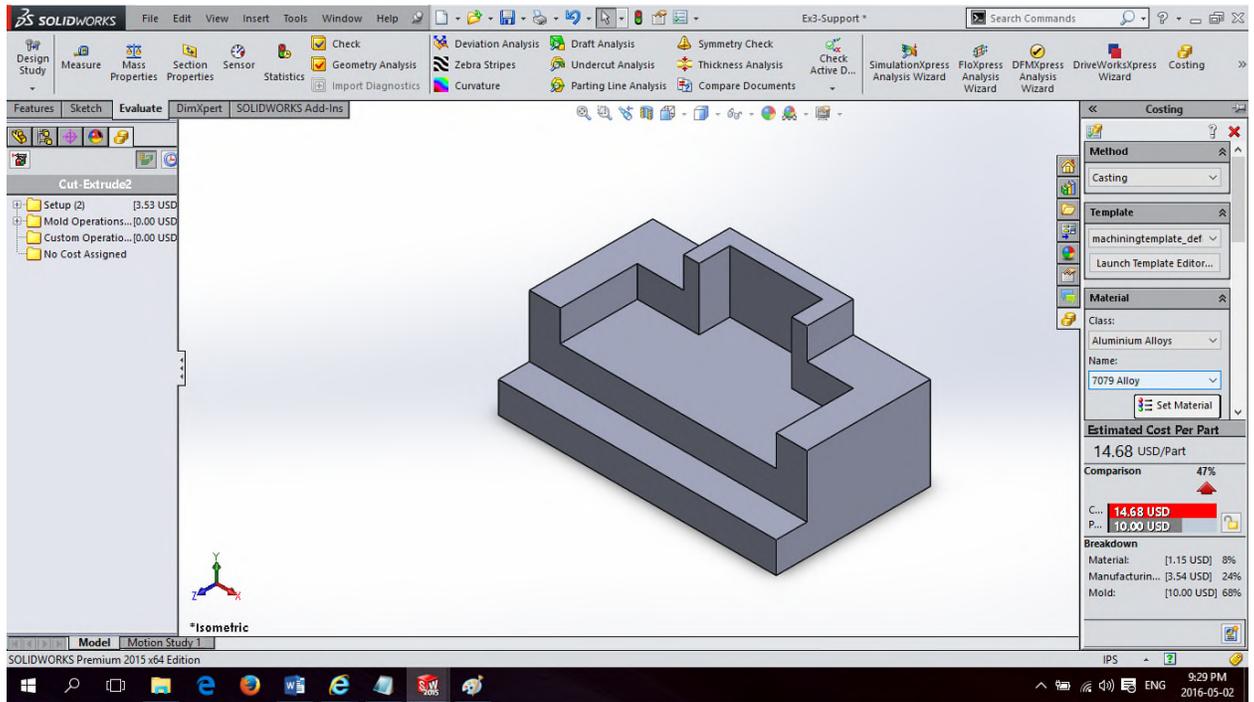
3. Problem 33-3



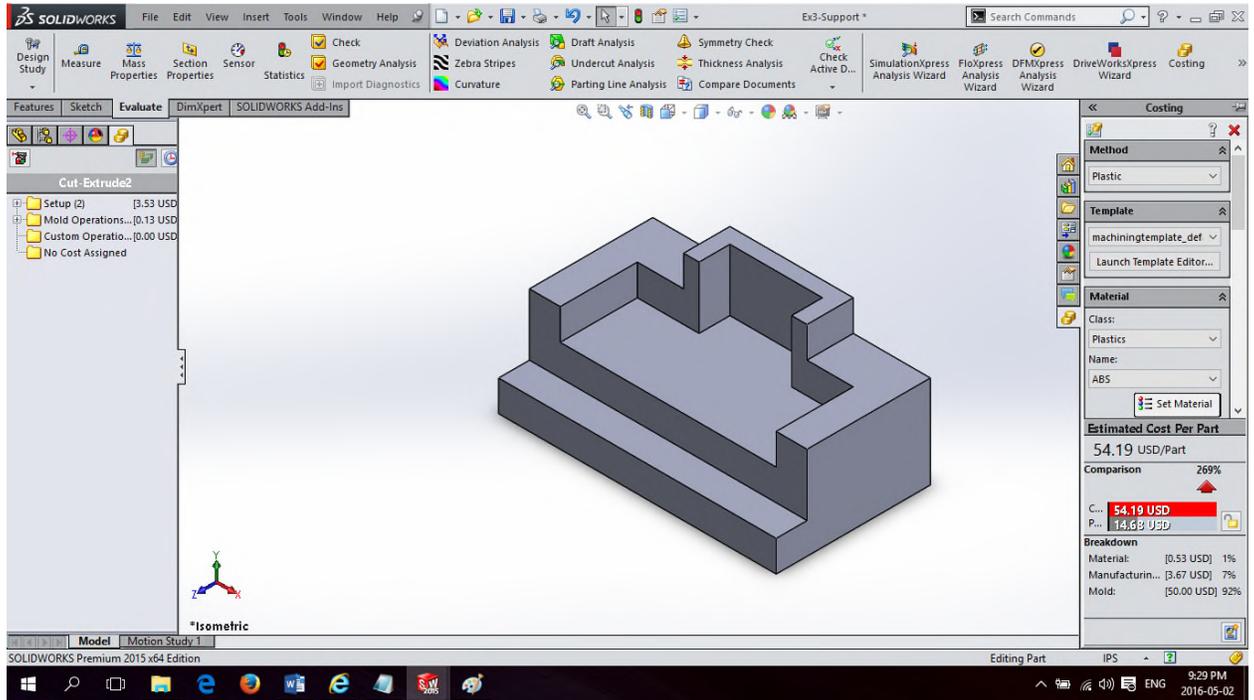
Step 1



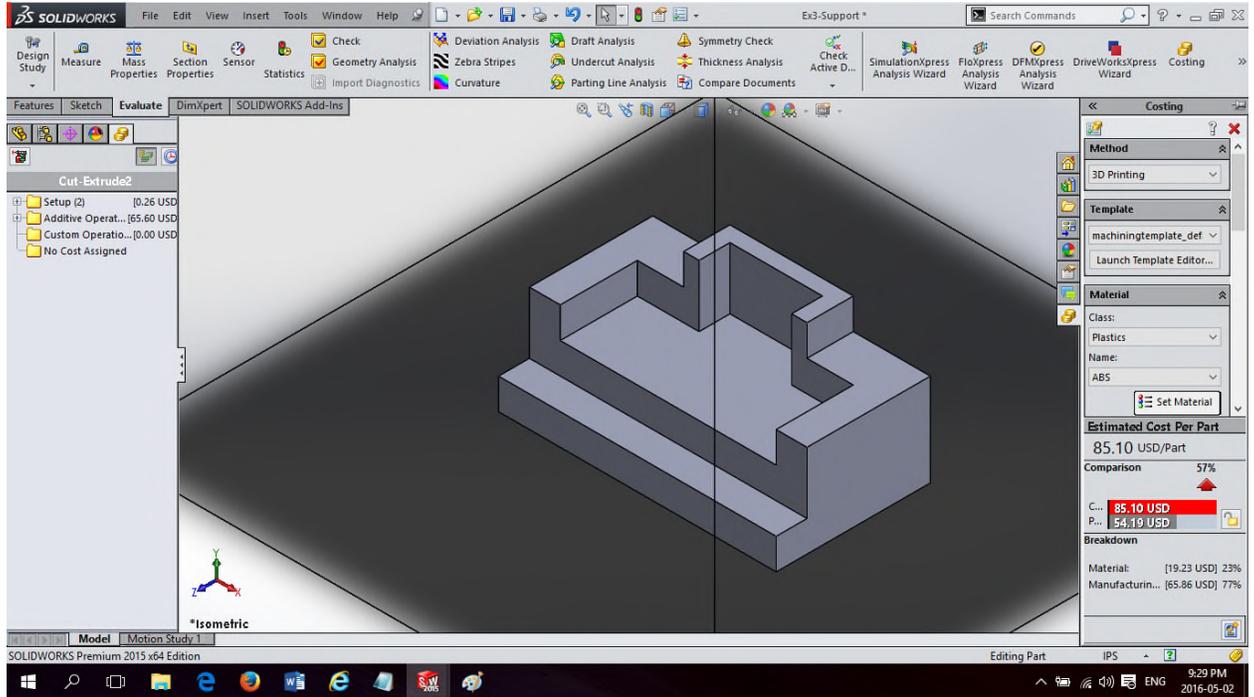
Machining: Steel



Casting: Aluminum



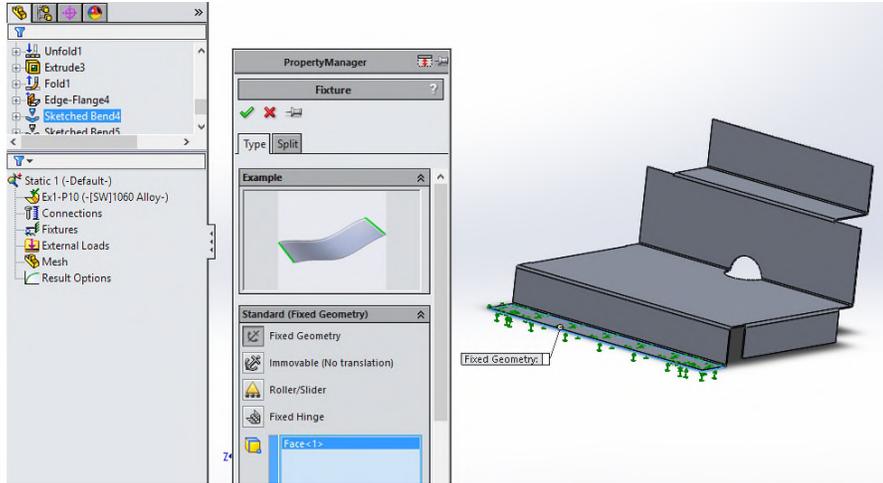
Injection Molding: Plastic



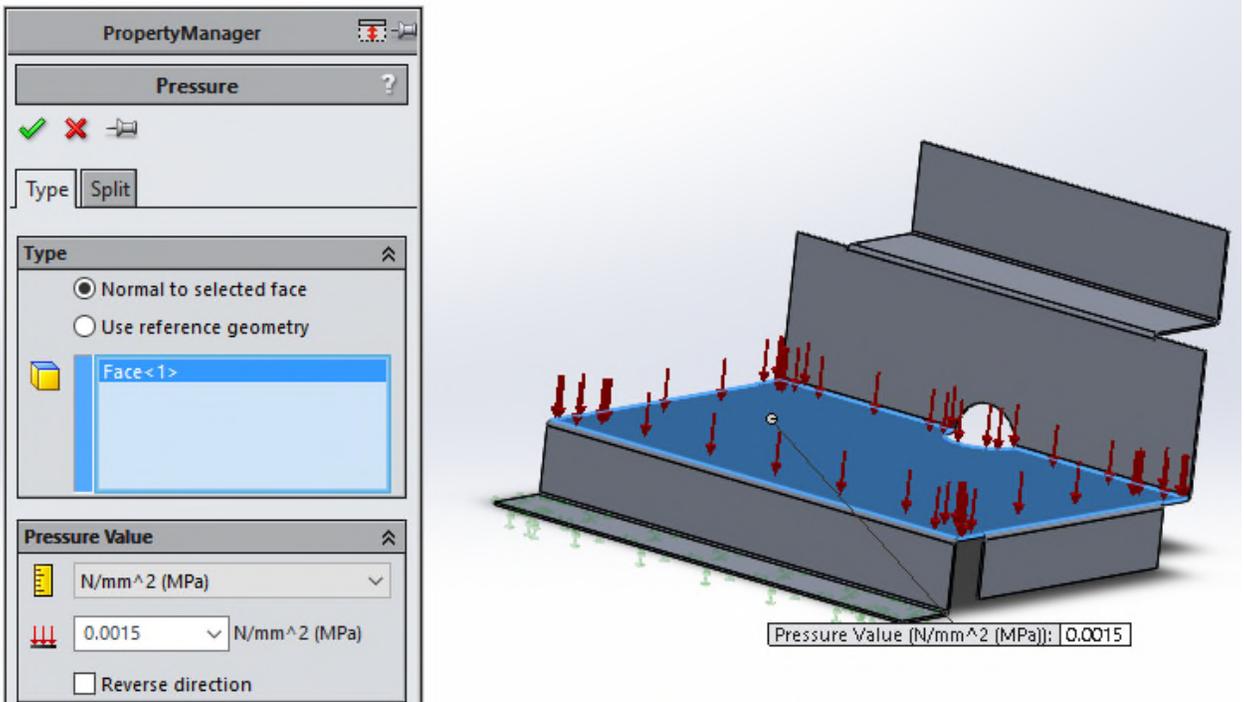
3D Printing: Plastic (ABS)

34: Finite Element Analysis Using SolidWorks

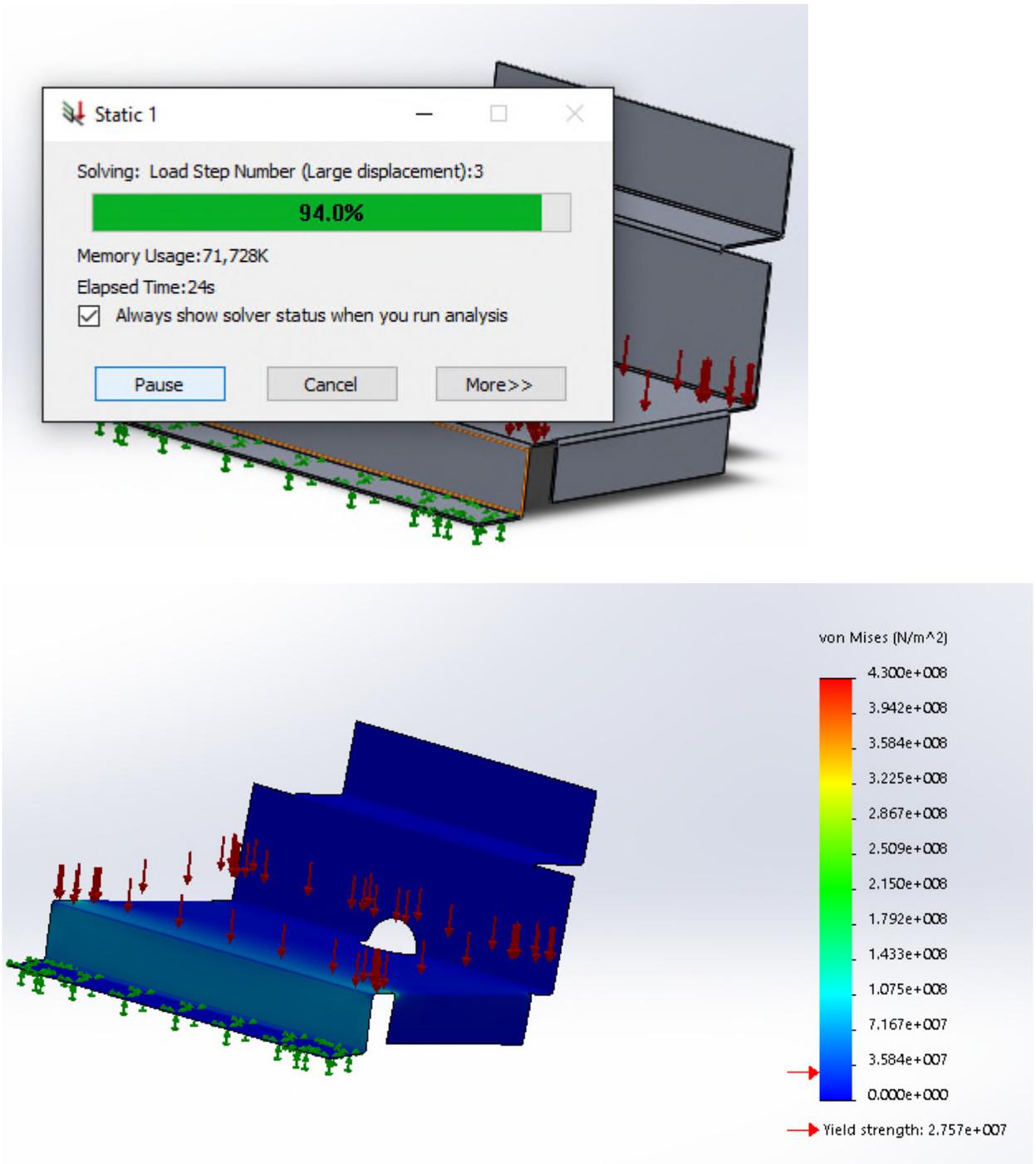
1. Problem 34-1



Step 1

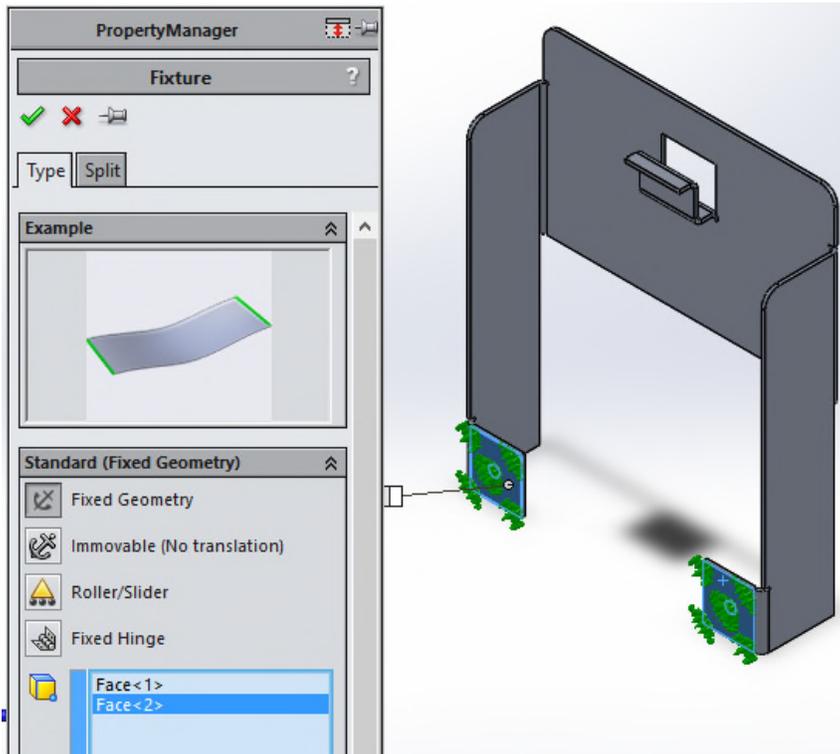


Step 2

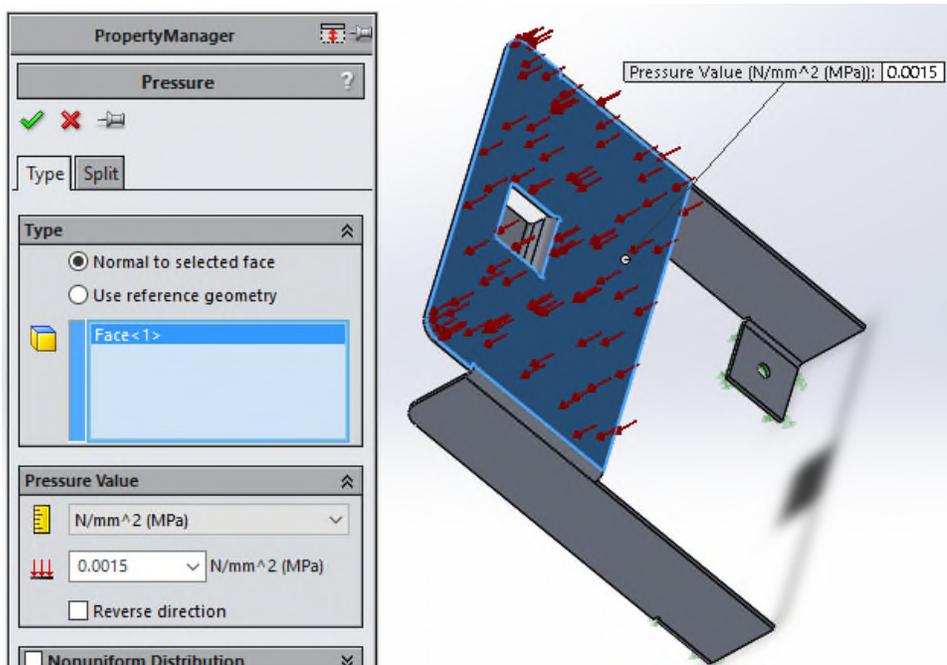


Repeat with conditions in (b) and (c)

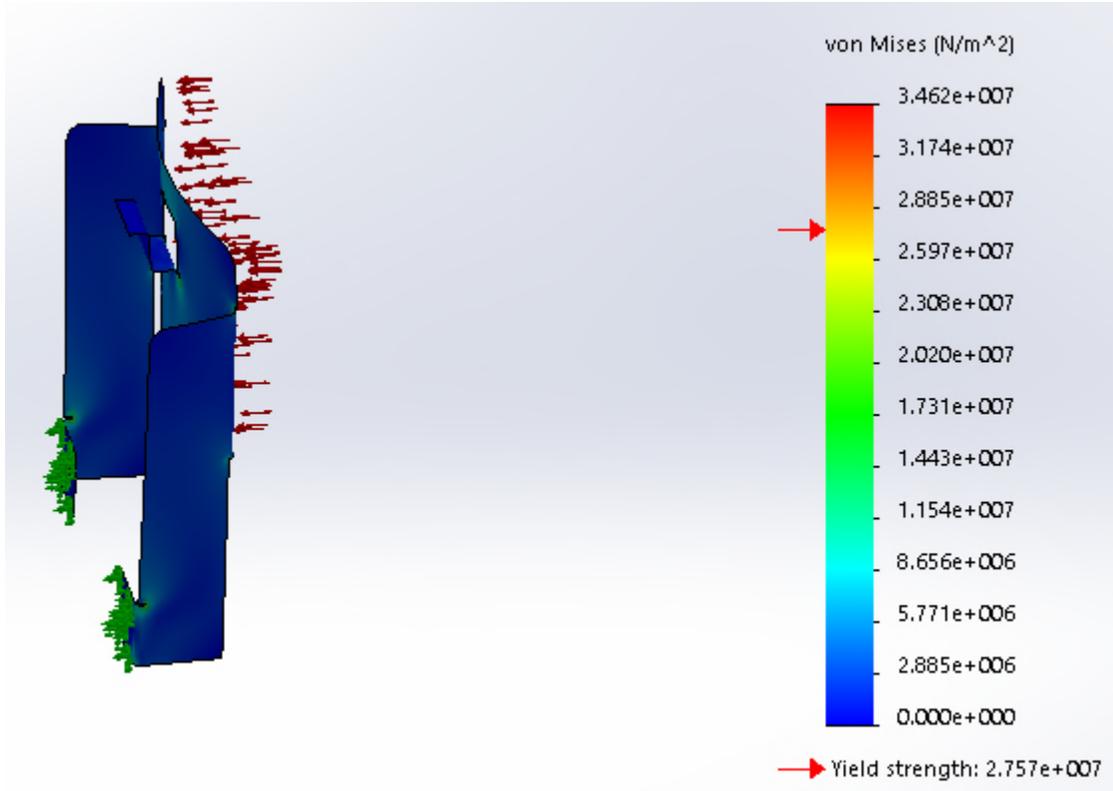
2. Problem 34-2



Step 1



Step 2



Step 3