

# Activity 4

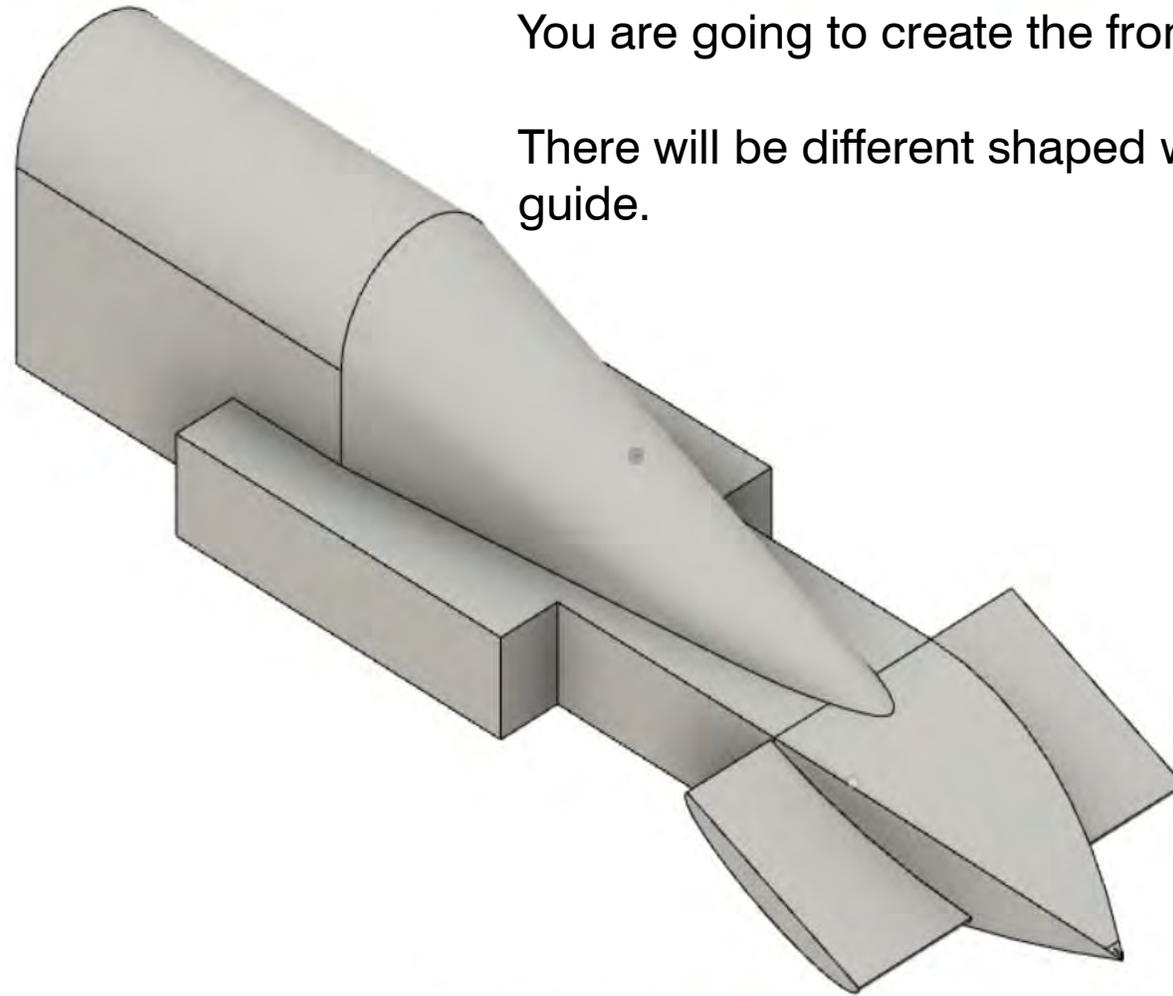
# Creating the front wings

PDF Guide



BROWSER

- no\_go\_zone\_2019\_2020\_entr...
- Document Settings
- Named Views
- Origin
- Bodies
- Sketches
- Construction

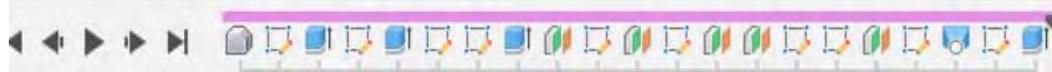
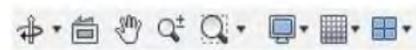


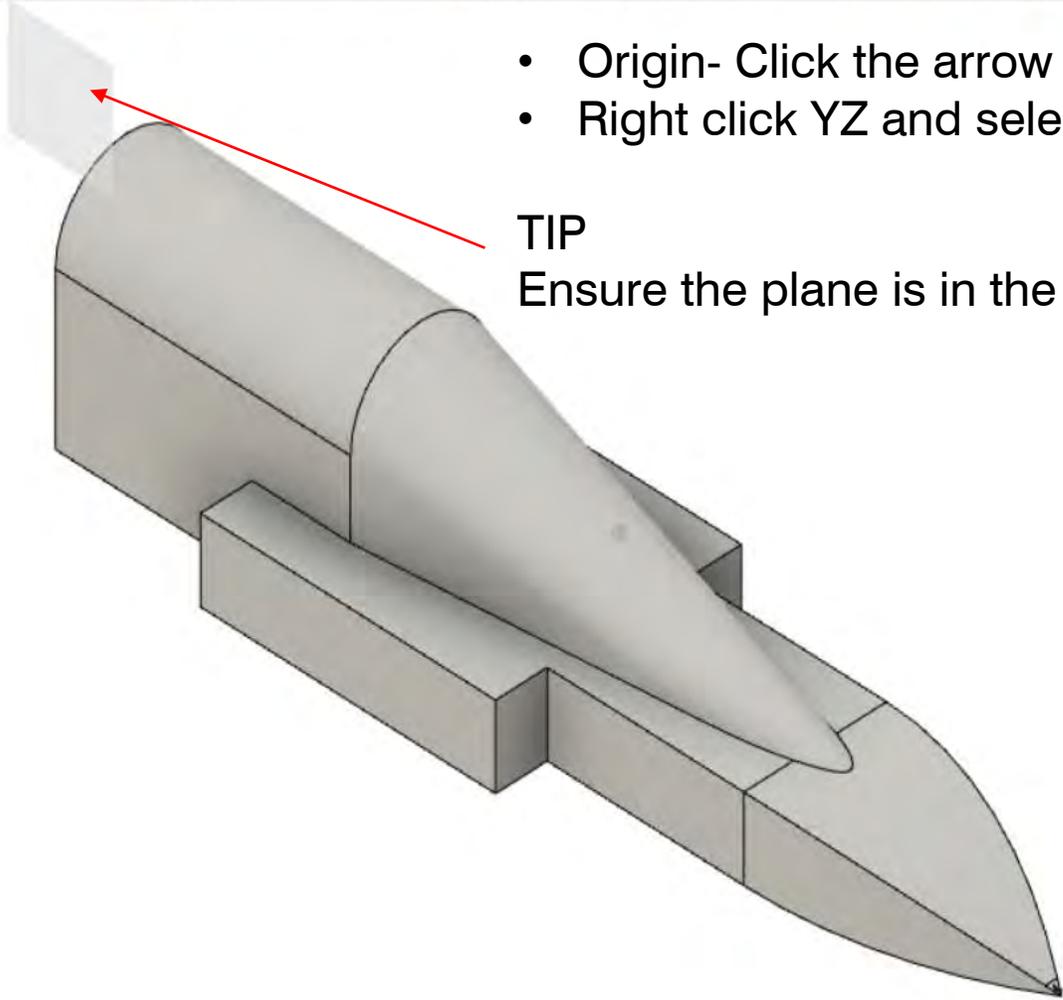
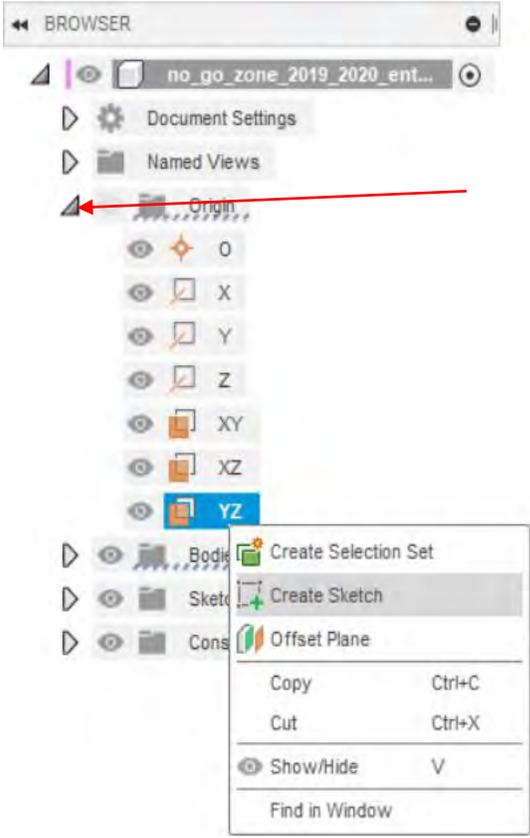
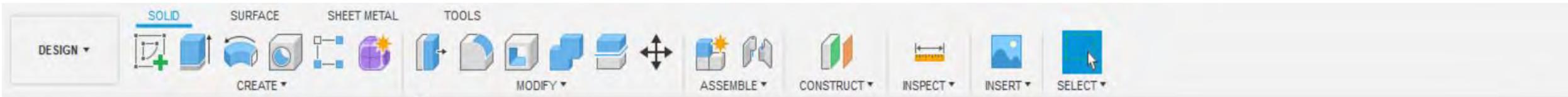
You are going to create the front wings on your car.

There will be different shaped wings throughout this guide.



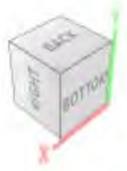
COMMENTS

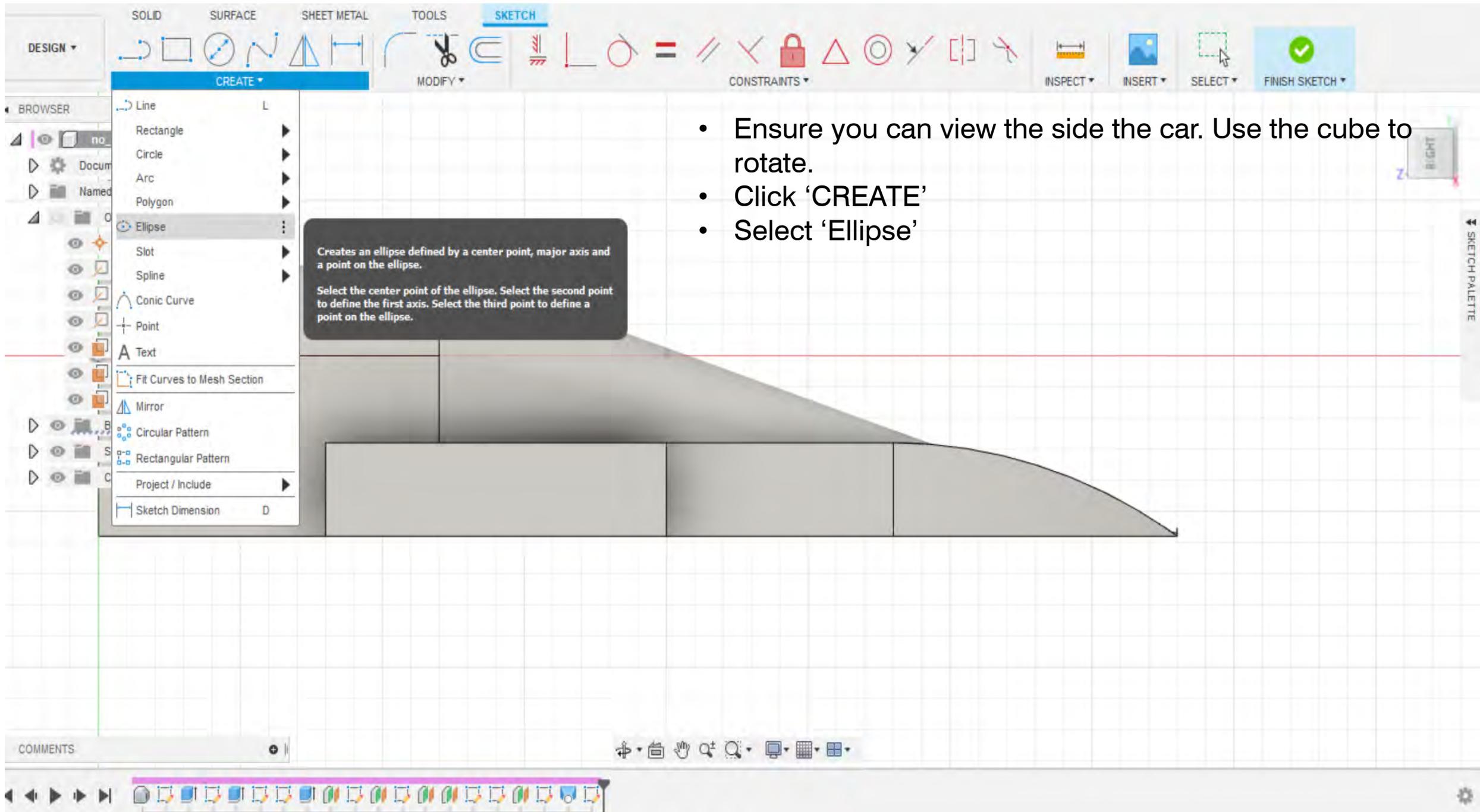




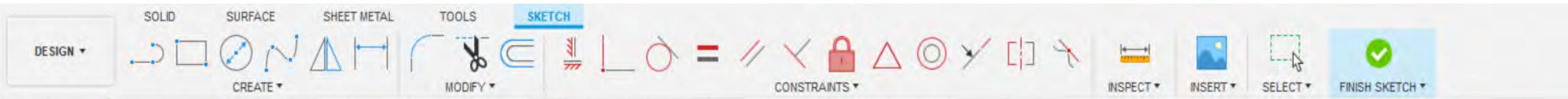
- Origin- Click the arrow next to origin.
- Right click YZ and select 'Create Sketch'

**TIP**  
Ensure the plane is in the middle of the car.





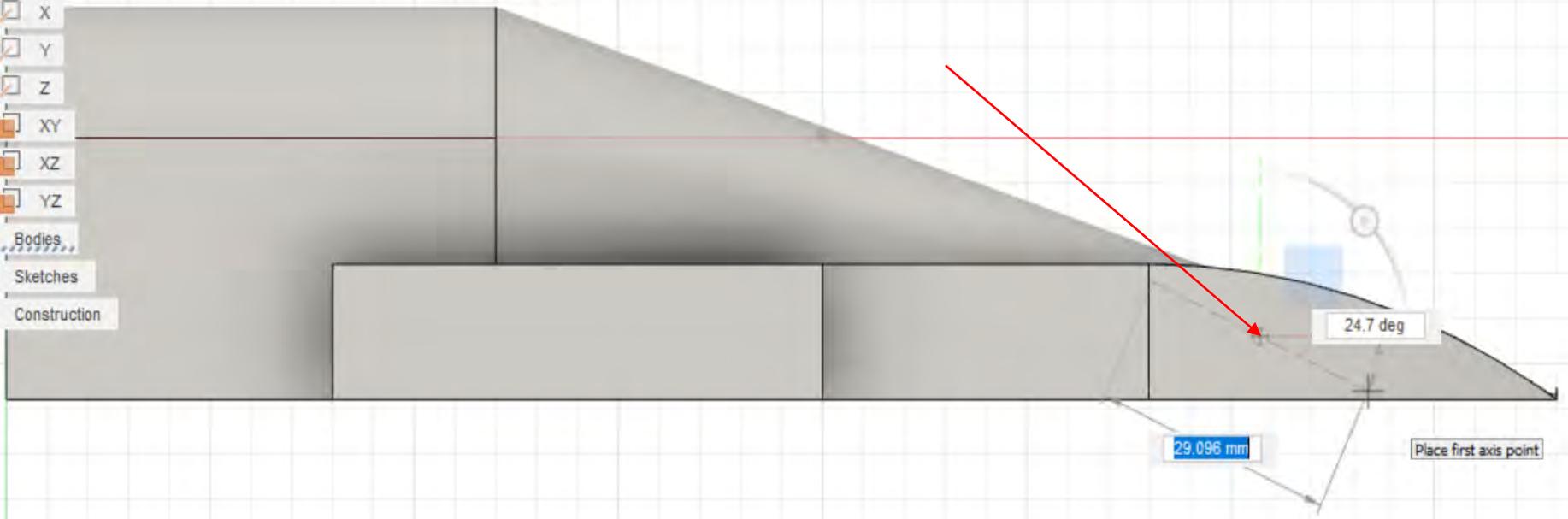
- Ensure you can view the side the car. Use the cube to rotate.
- Click 'CREATE'
- Select 'Ellipse'



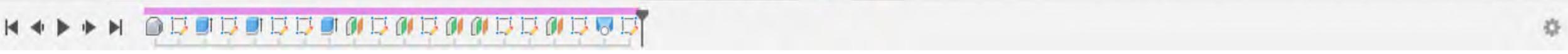
BROWSER

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- Select the place you would like the middle of the wing.
- Drag the cord length of the wing.
- Select the thickness of the ellipse- 3mm- 15mm



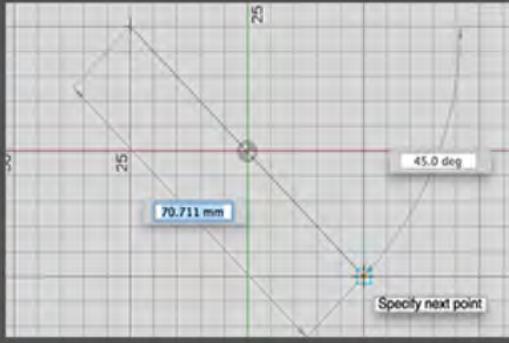
COMMENTS



Line (l)

Creates lines and arcs.

Select a start and endpoint to define a line segment. Click and drag the endpoint of a segment to define an arc.



70.711 mm

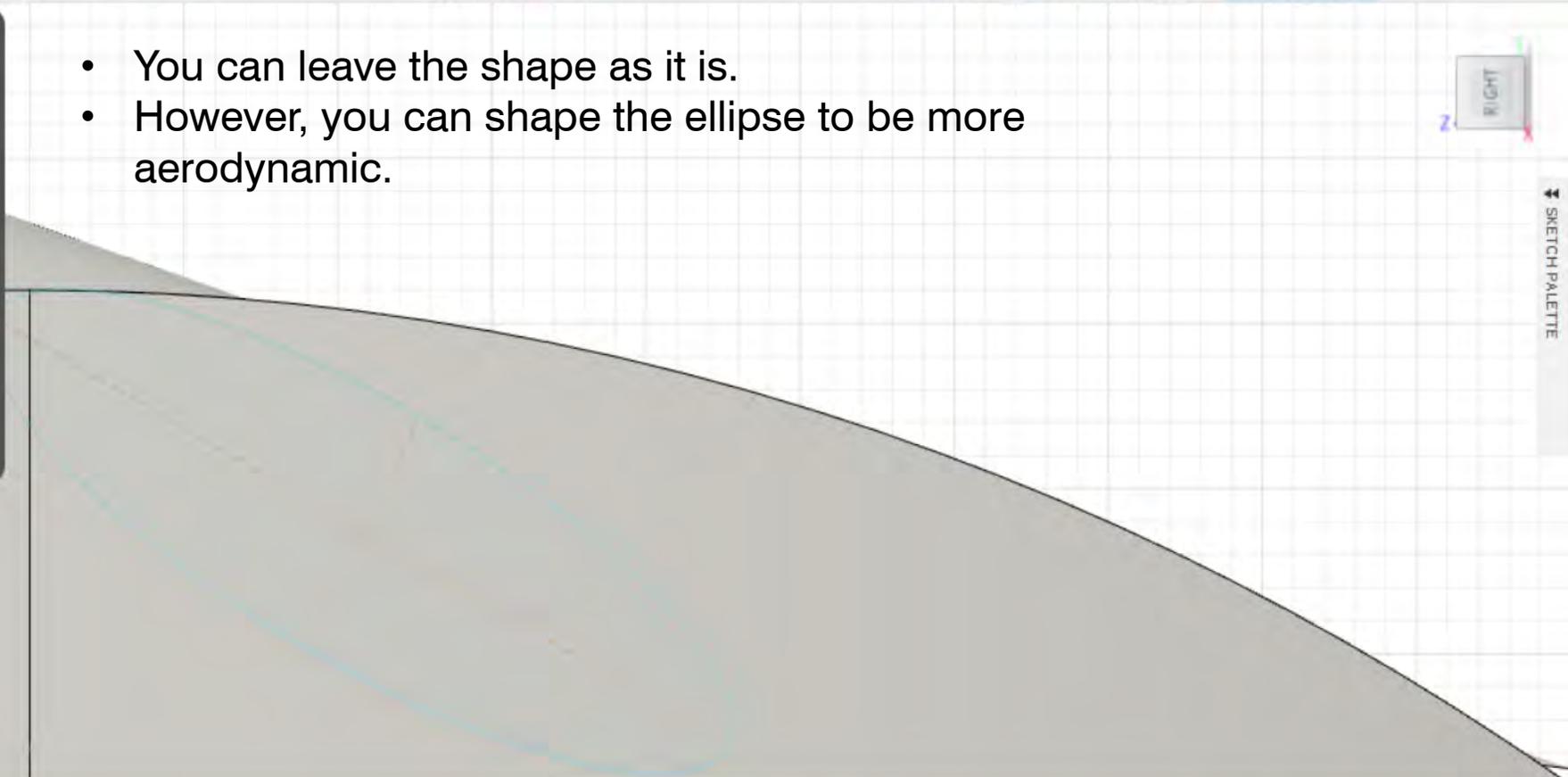
45.0 deg

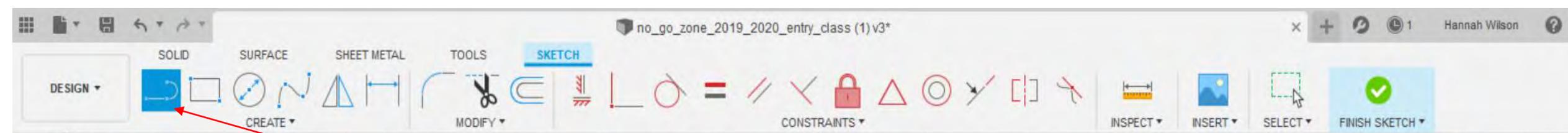
Specify next point

BROWSER

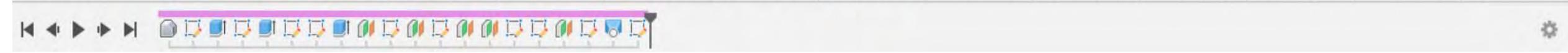
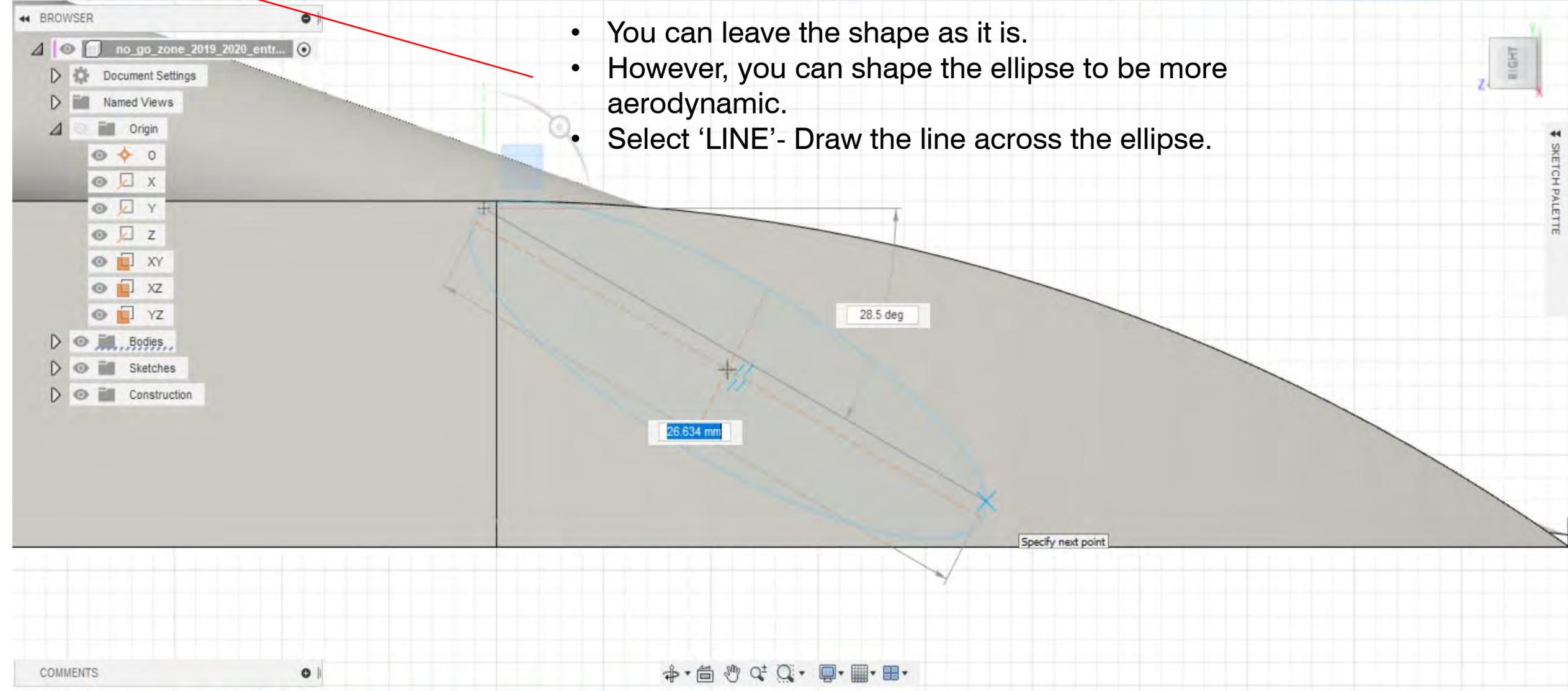
- Bodies
- Sketches
- Construction

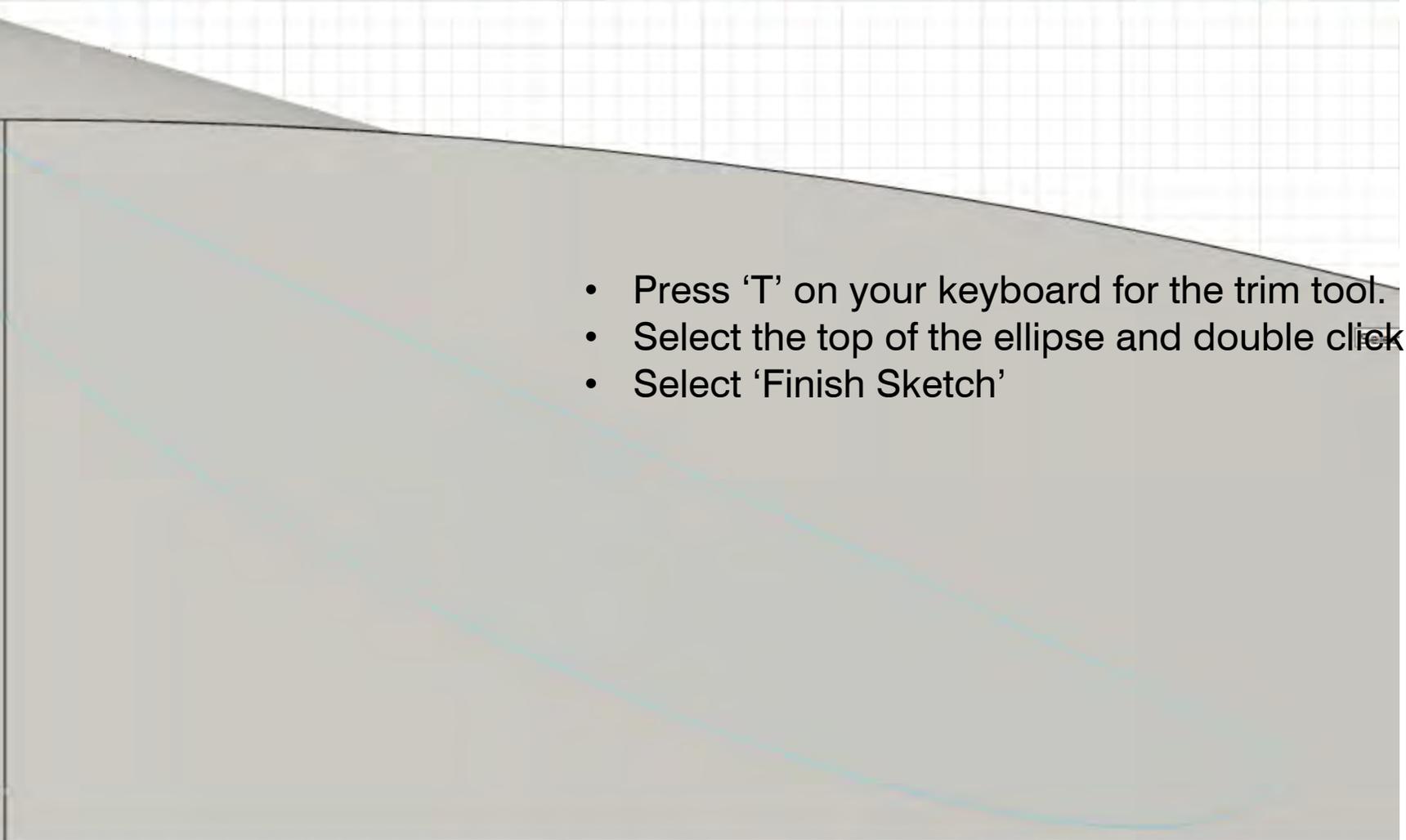
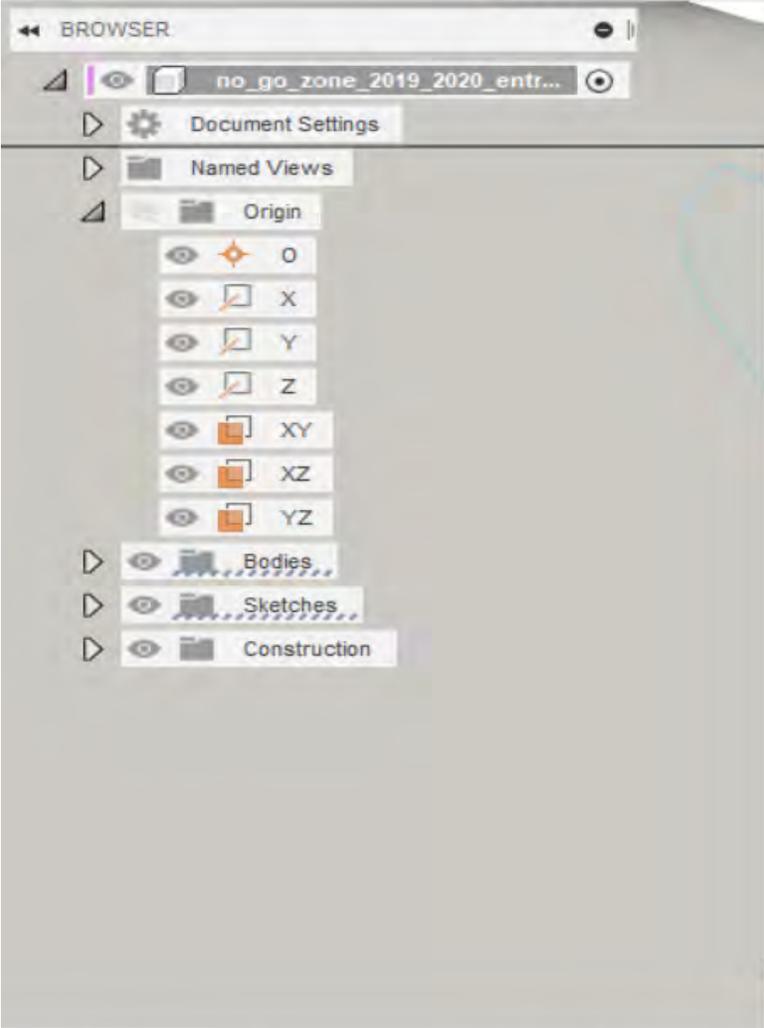
- You can leave the shape as it is.
- However, you can shape the ellipse to be more aerodynamic.



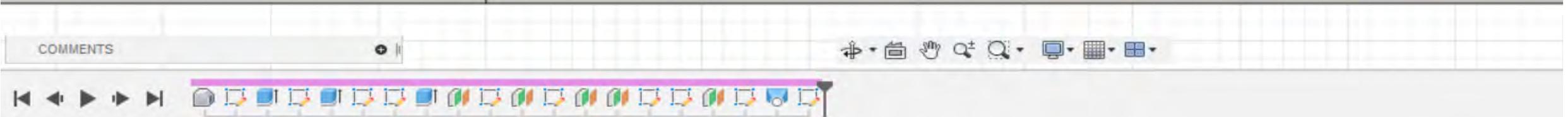


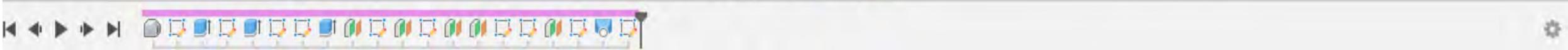
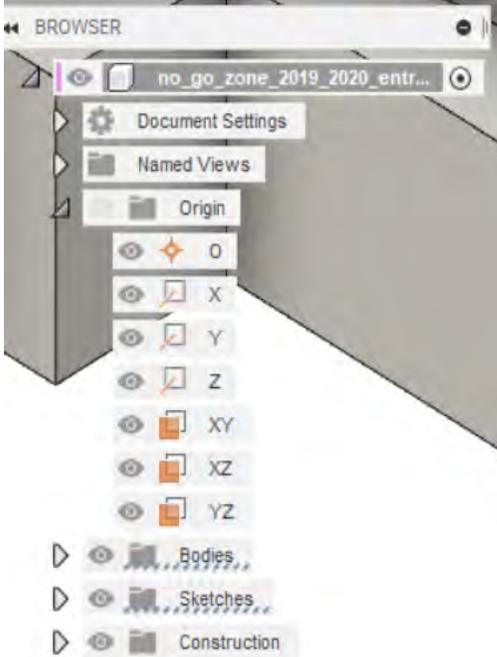
- You can leave the shape as it is.
- However, you can shape the ellipse to be more aerodynamic.
- Select 'LINE'- Draw the line across the ellipse.

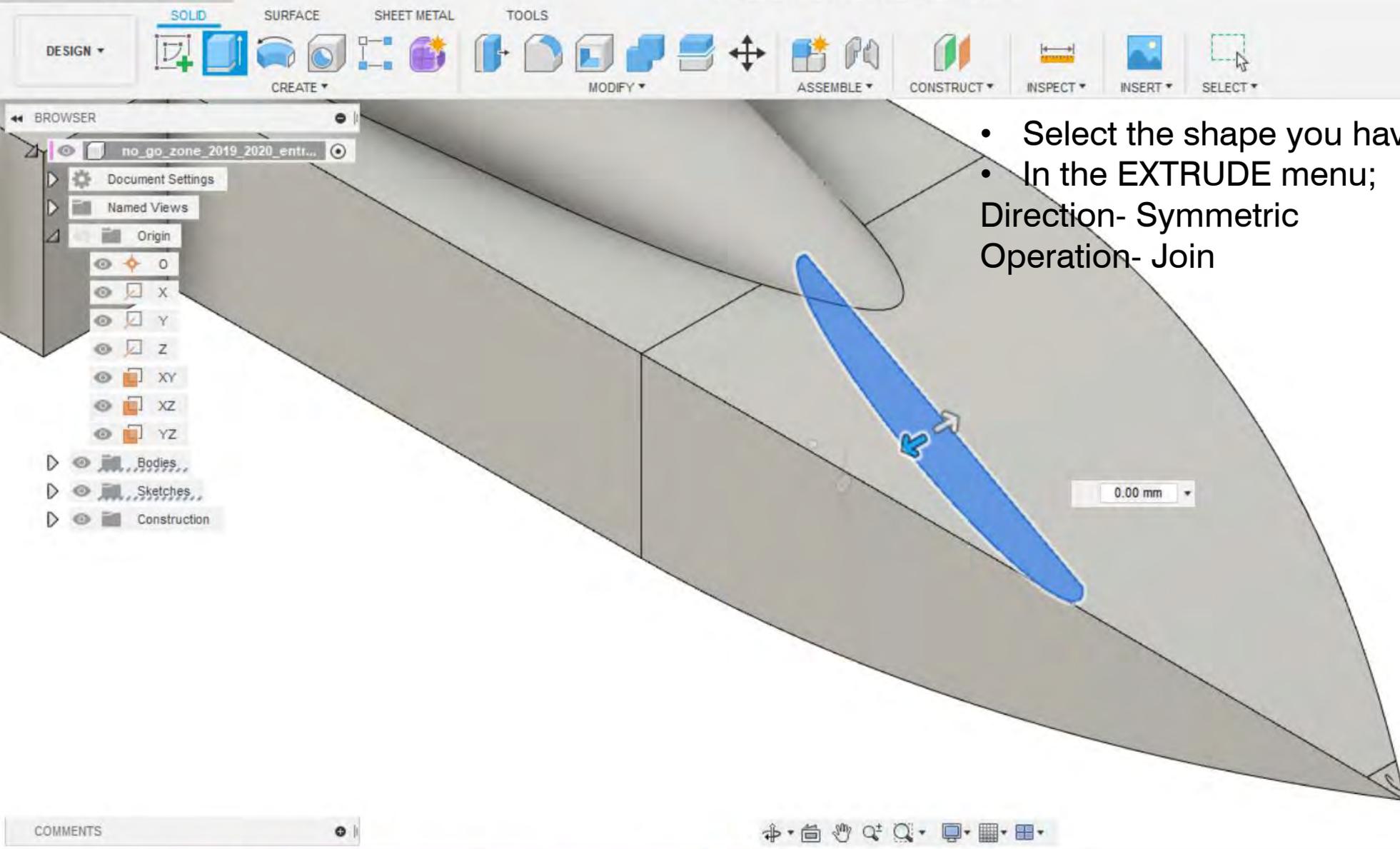




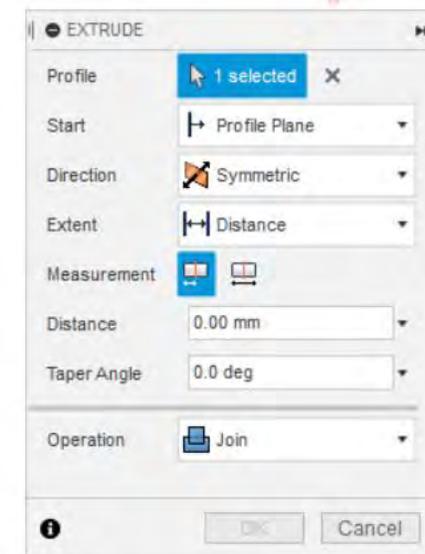
- Press 'T' on your keyboard for the trim tool.
- Select the top of the ellipse and double click.
- Select 'Finish Sketch'

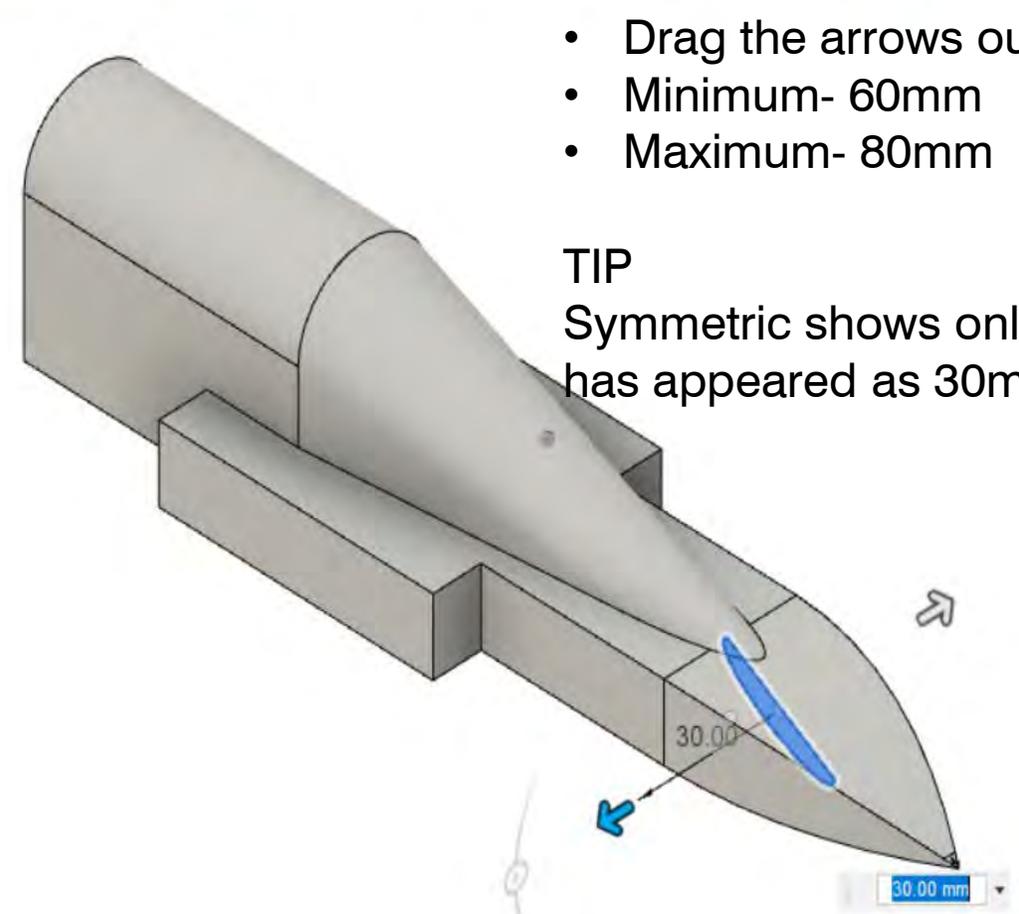
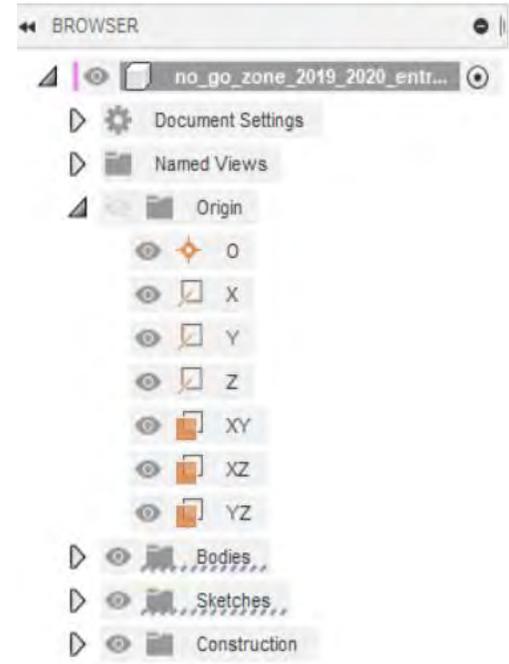






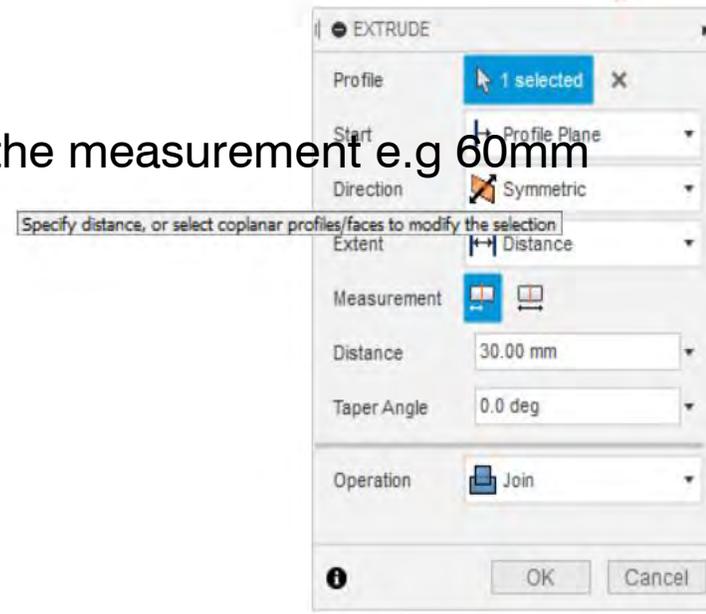
- Select the shape you have created.
- In the EXTRUDE menu;  
Direction- Symmetric  
Operation- Join

1 Profile | Area: 103.81 mm<sup>2</sup>



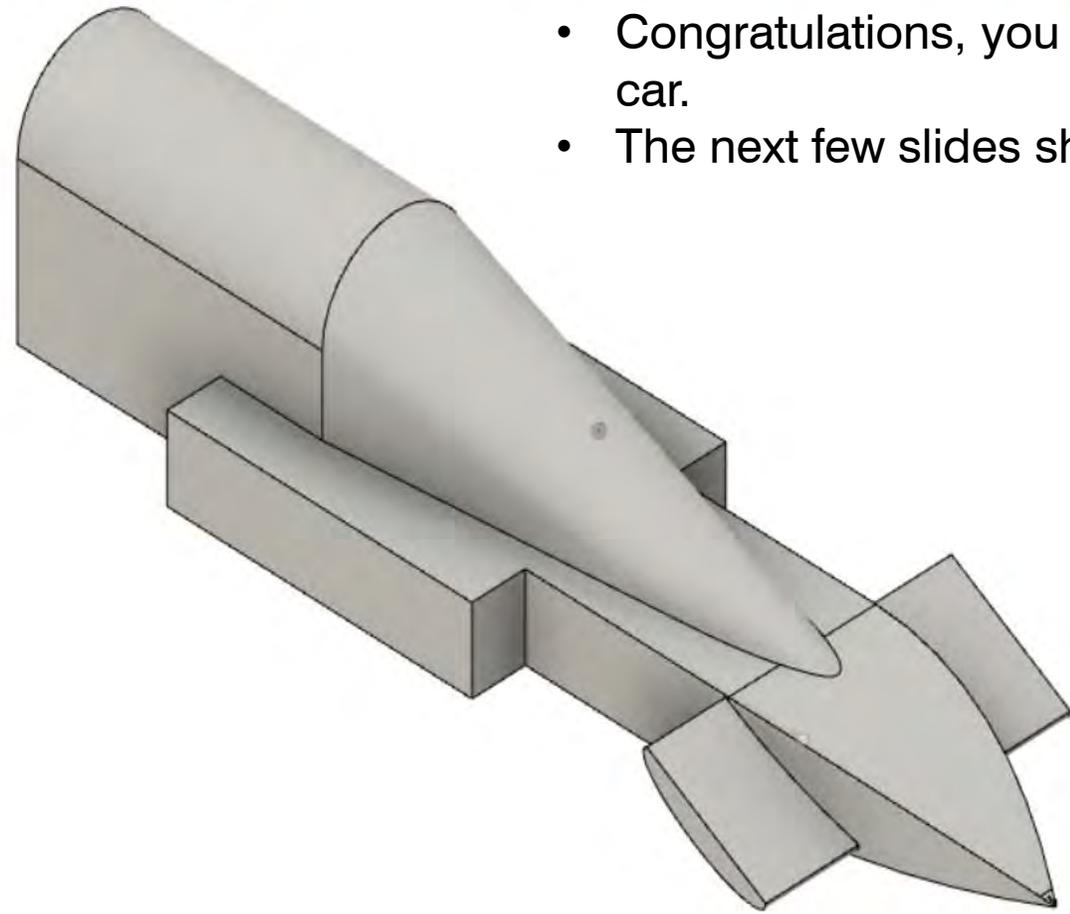
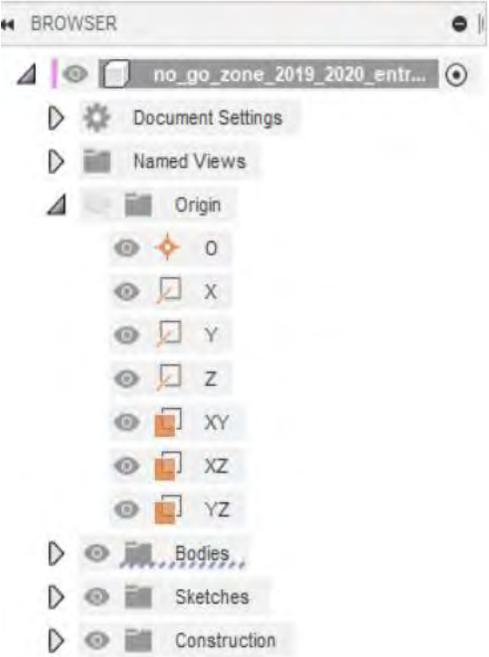
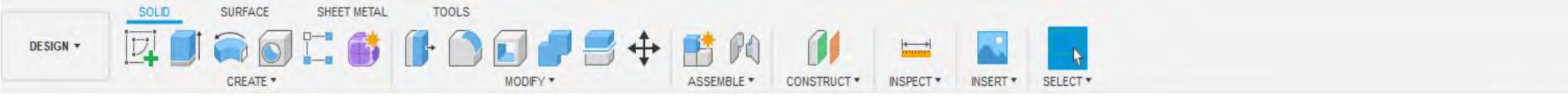
- Drag the arrows outwards for the wing span.
- Minimum- 60mm
- Maximum- 80mm

**TIP**  
Symmetric shows only half the measurement e.g 60mm has appeared as 30mm.

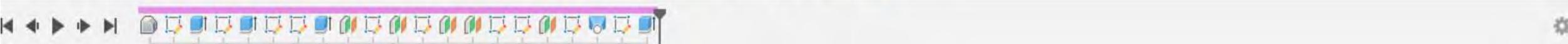
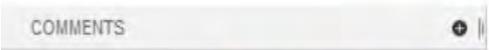


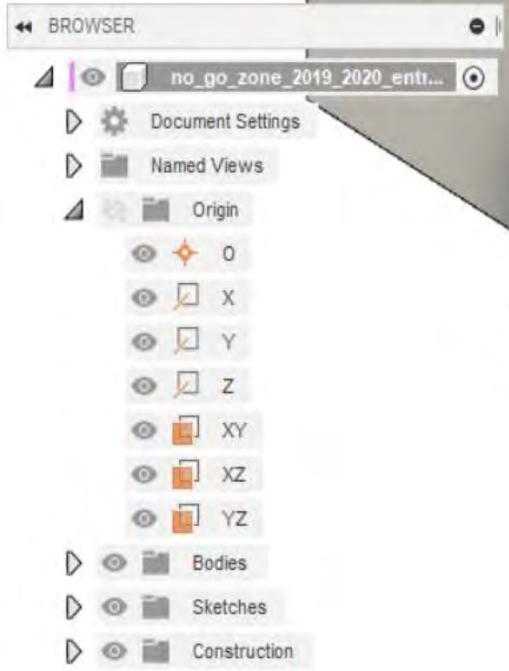
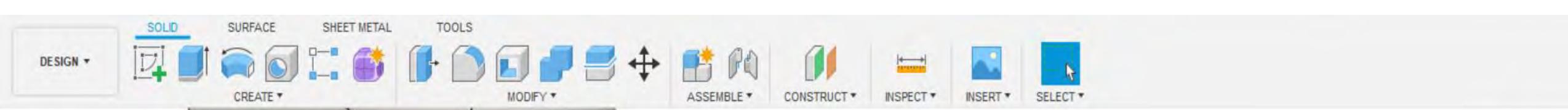
1 Profile | Area : 103.81 mm^2



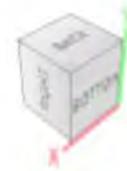
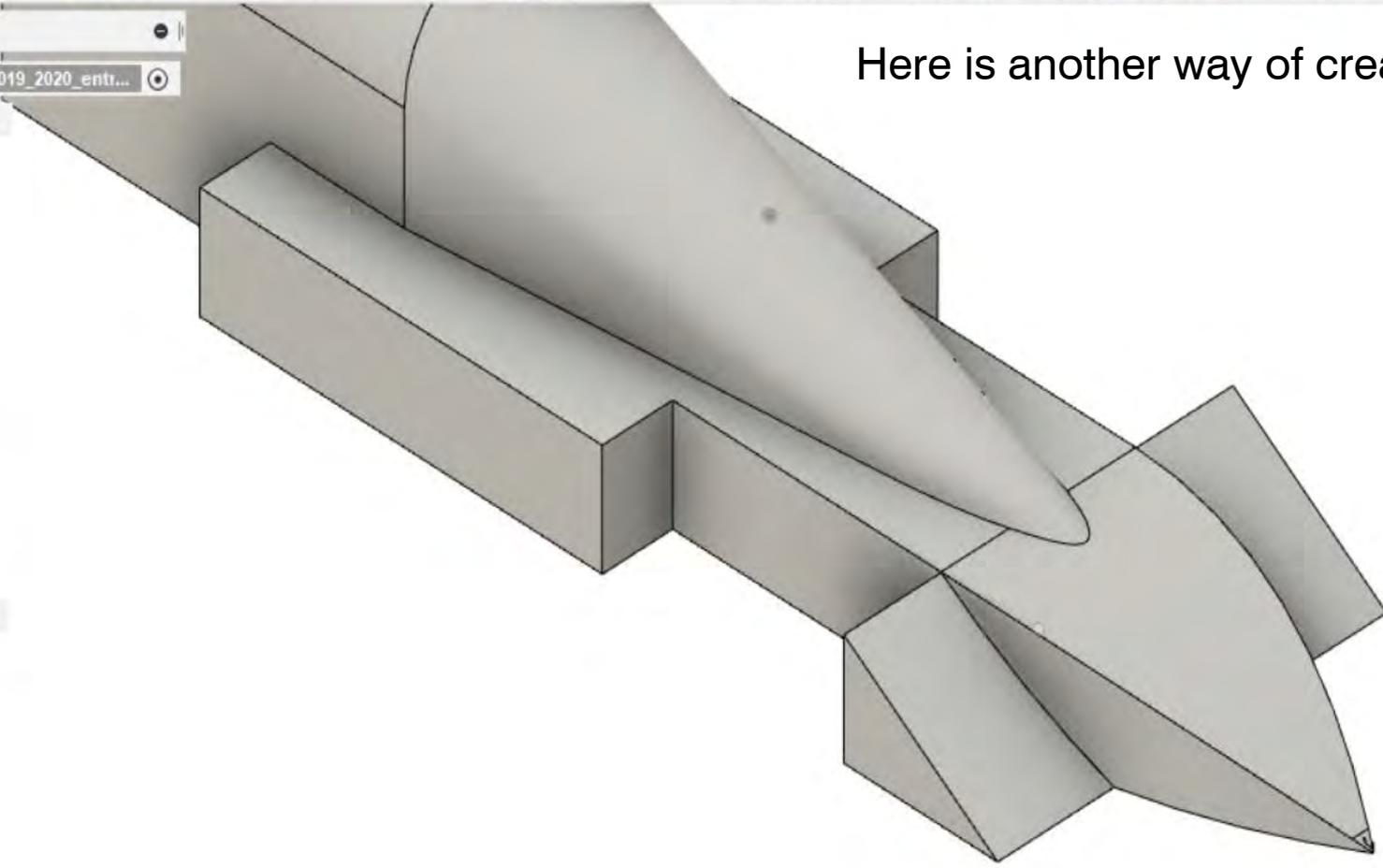


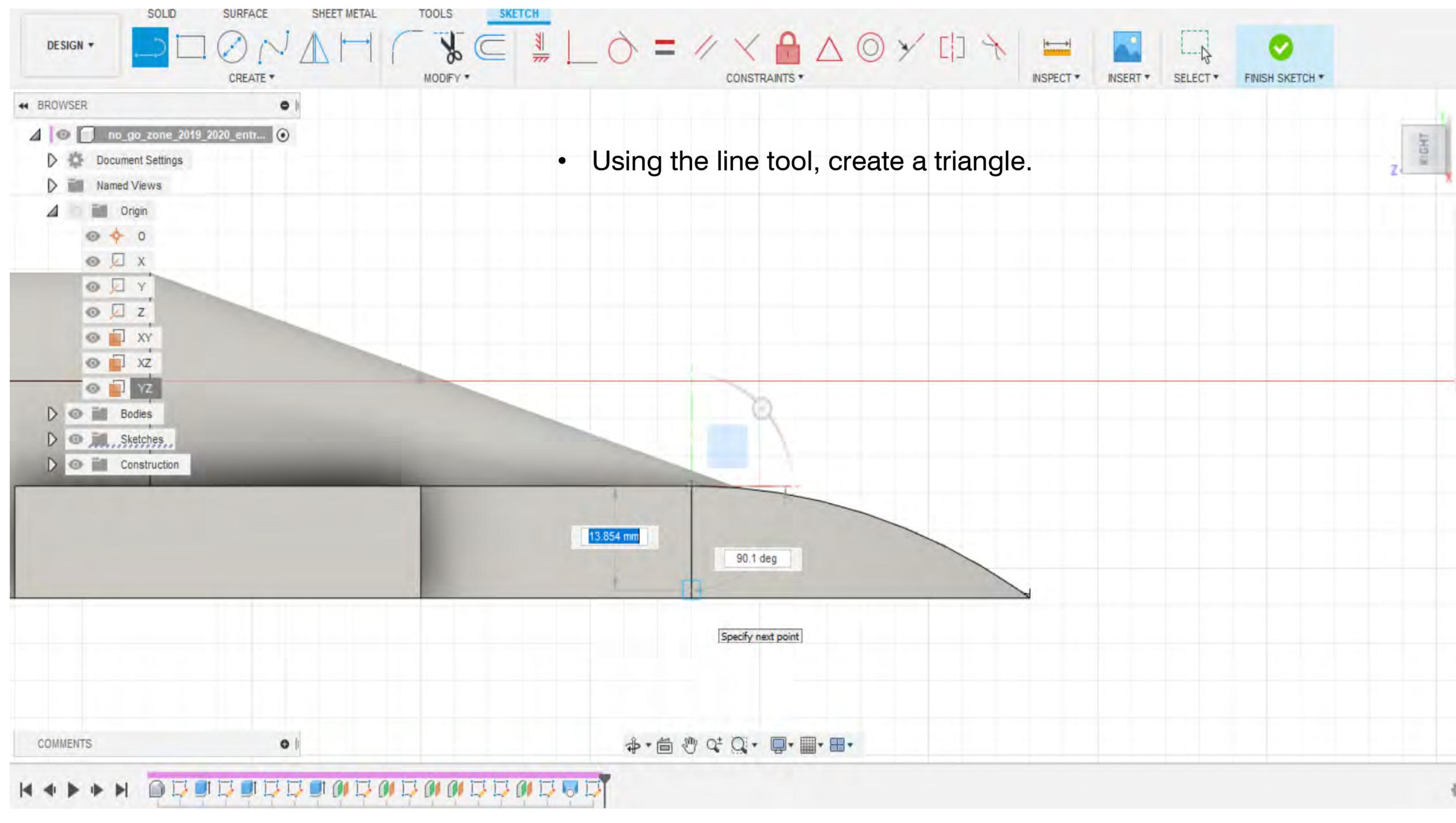
- Congratulations, you have created a front wing for your car.
- The next few slides show different shaped wings.



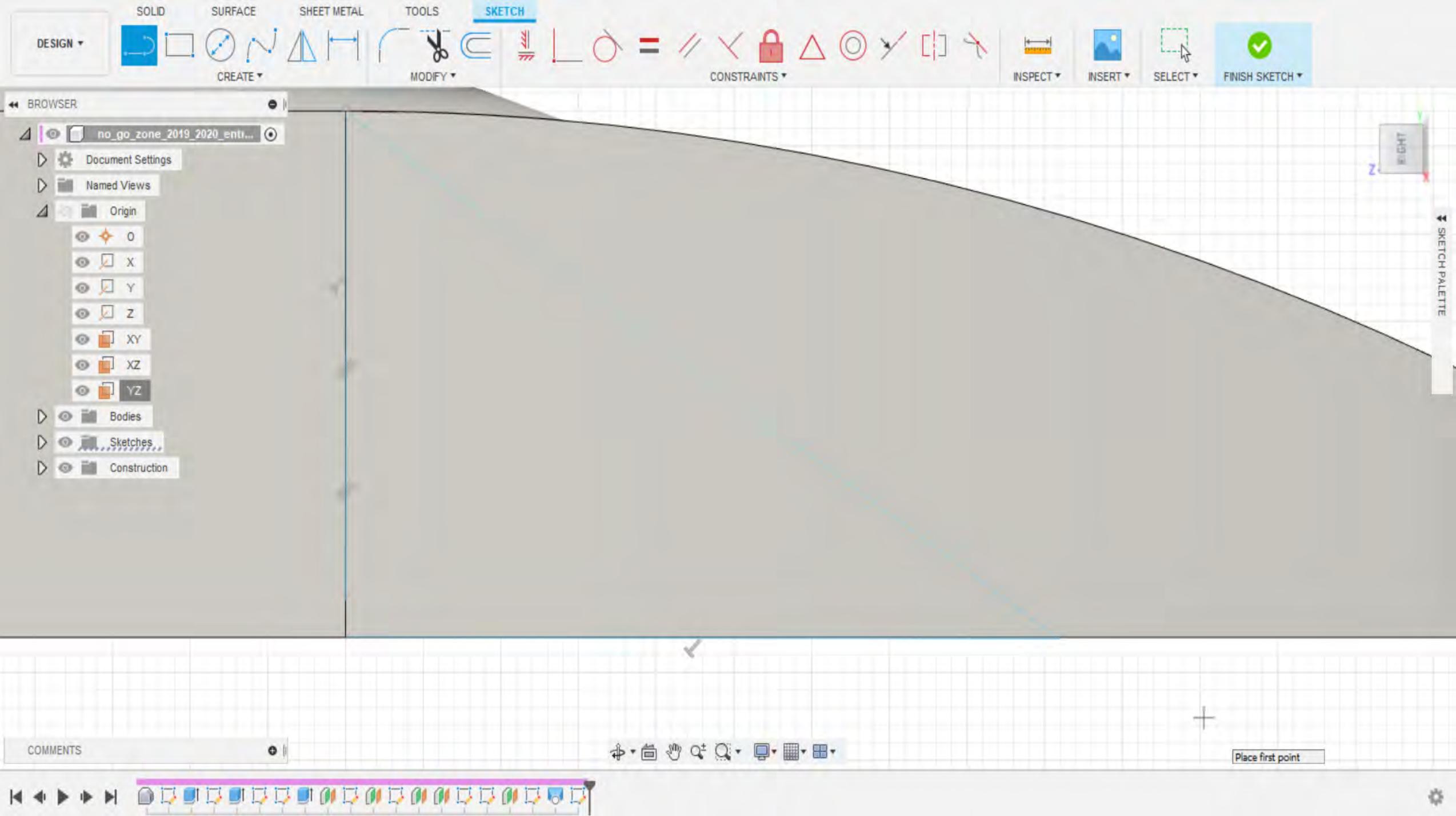


Here is another way of creating the front wings.





- Using the line tool, create a triangle.



DESIGN ▾

SOLID

SURFACE

SHEET METAL

TOOLS

SKETCH

CREATE ▾

MODIFY ▾

CONSTRAINTS ▾

INSPECT ▾

INSERT ▾

SELECT ▾

FINISH SKETCH ▾

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Document Settings

Named Views

Origin

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XY

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YZ

Bodies

Sketches

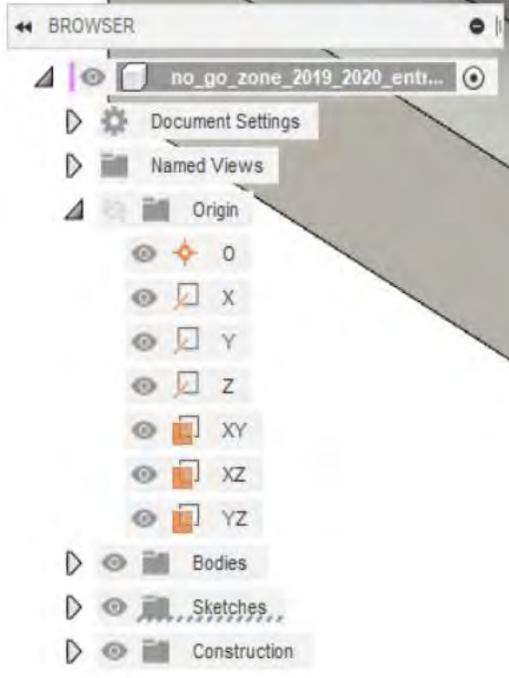
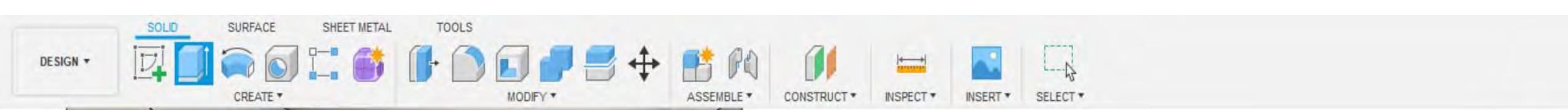
Construction

RIGHT

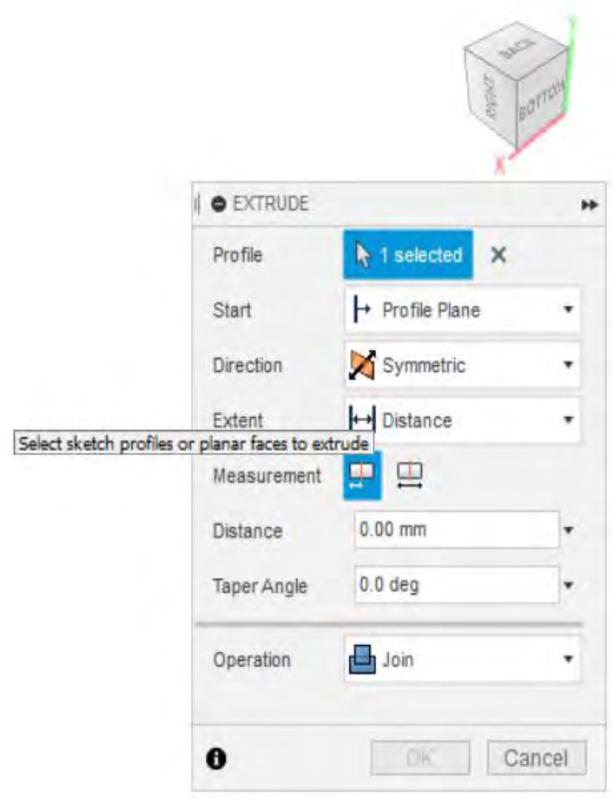
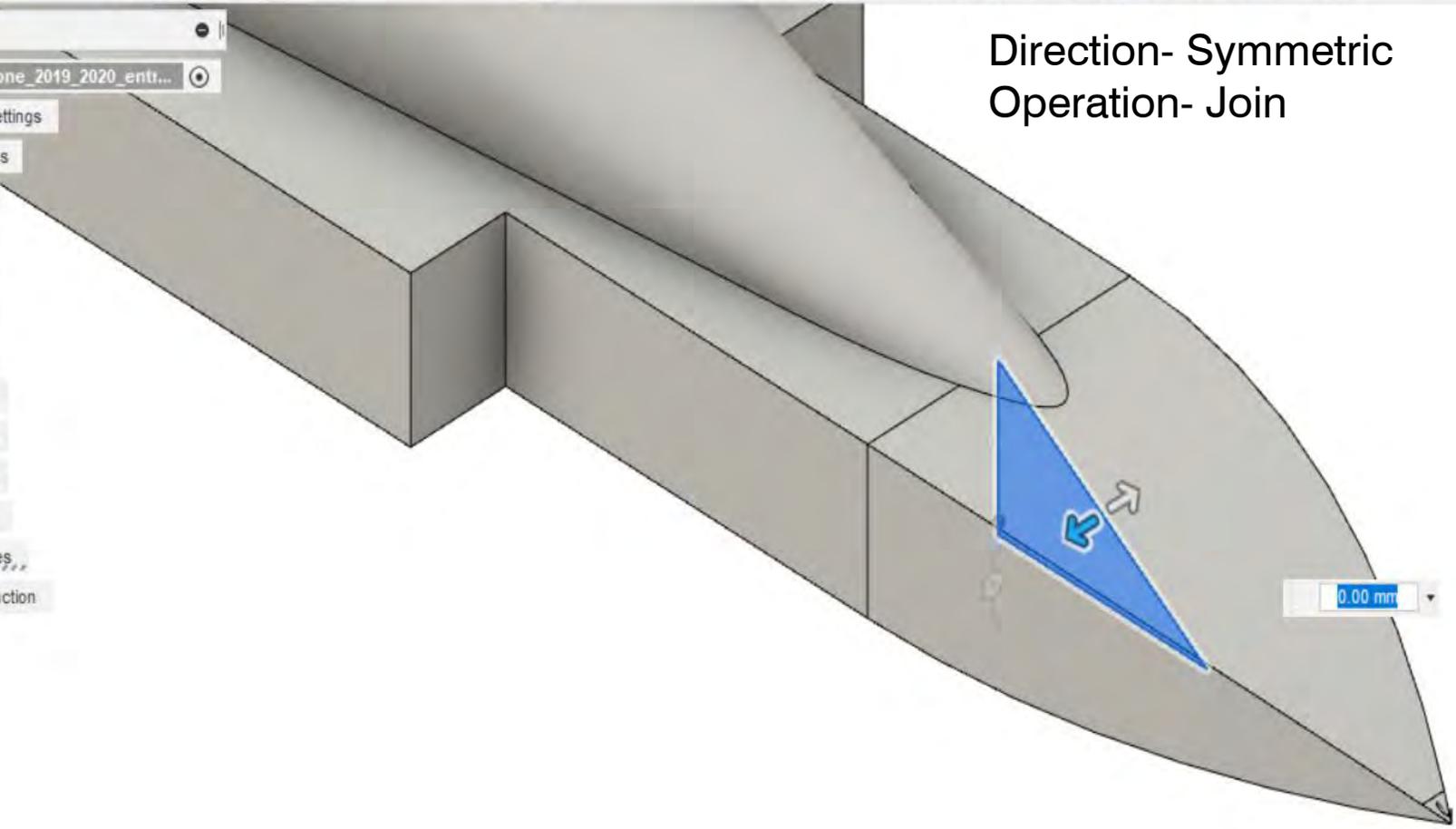
SKETCH PALETTE

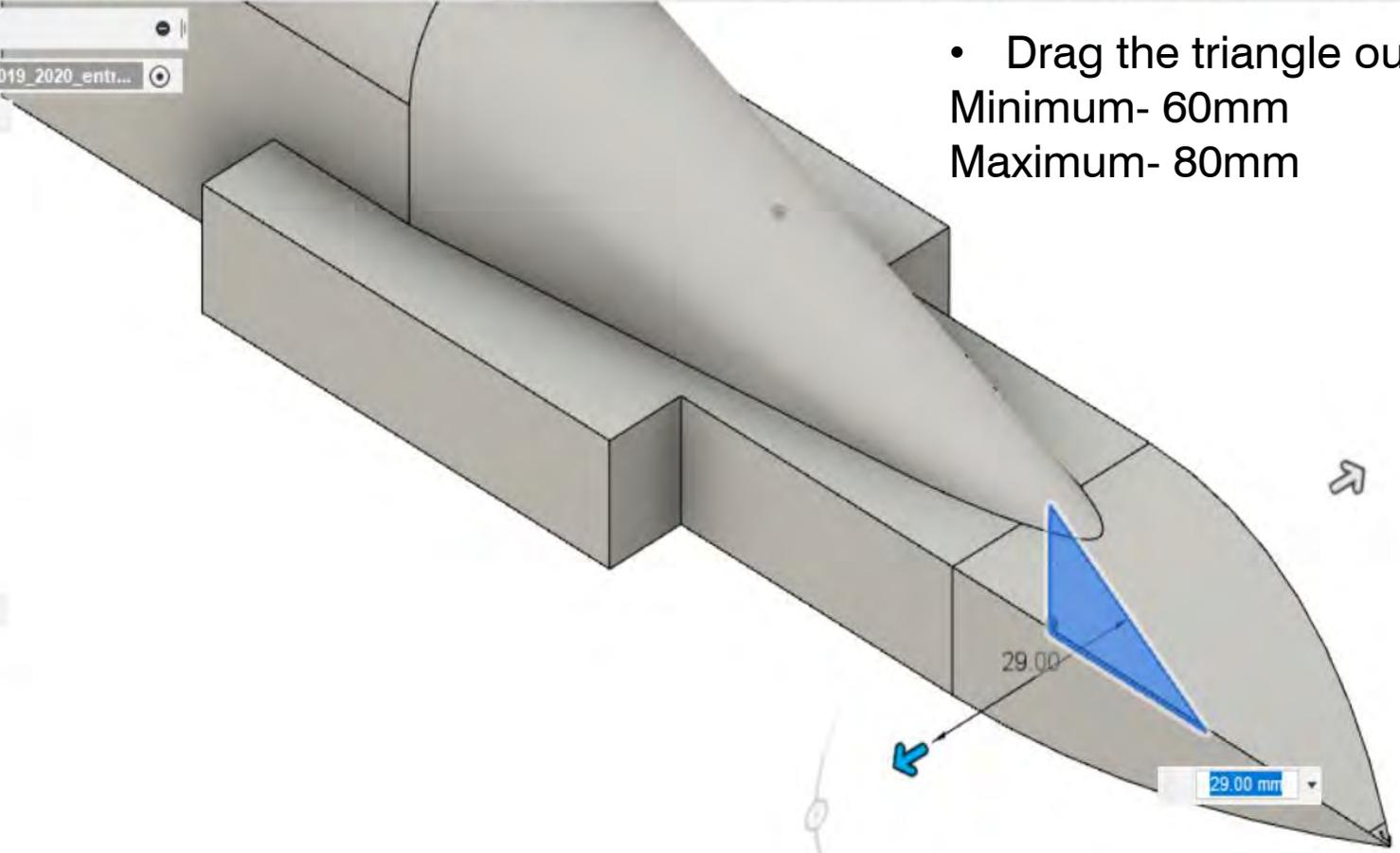
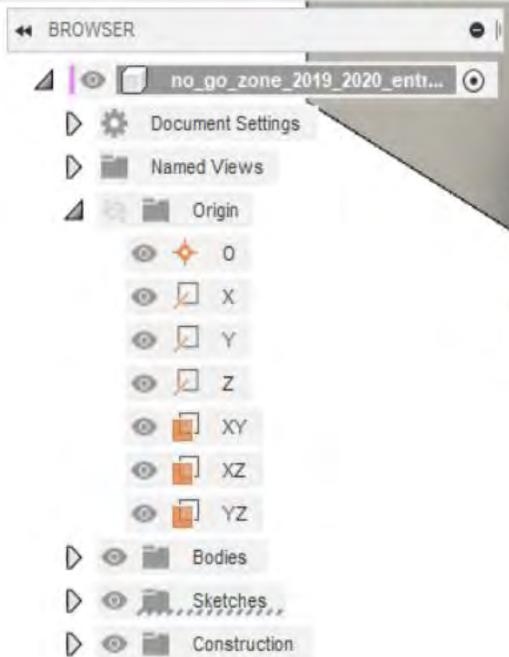
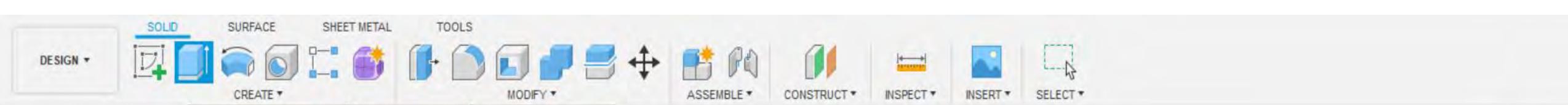
COMMENTS

Place first point

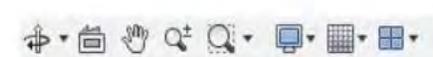
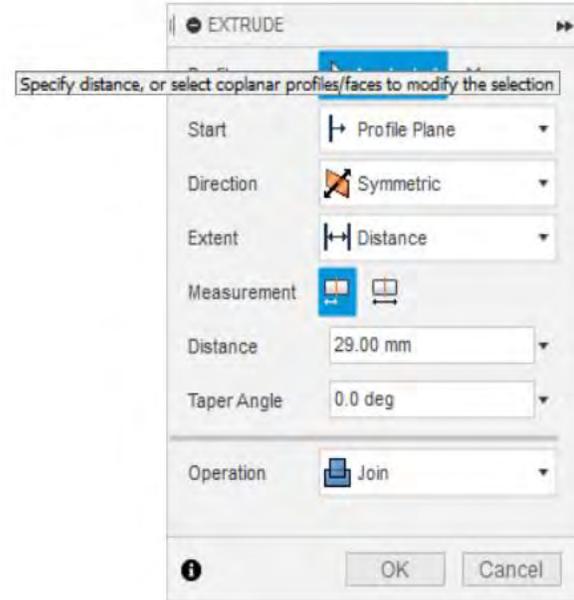


Direction- Symmetric  
Operation- Join





- Drag the triangle out  
Minimum- 60mm  
Maximum- 80mm



1 Profile | Area : 171.407 mm^2



DESIGN ▾

SOLID

SURFACE

SHEET METAL

TOOLS



CREATE ▾

MODIFY ▾

ASSEMBLE ▾

CONSTRUCT ▾

INSPECT ▾

INSERT ▾

SELECT ▾

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Document Settings

Named Views

Origin

0

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XY

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DESIGN ▾

SOLID

SURFACE

SHEET METAL

TOOLS



CREATE ▾

MODIFY ▾

ASSEMBLE ▾

CONSTRUCT ▾

INSPECT ▾

INSERT ▾

SELECT ▾

BROWSER

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Document Settings

Named Views

Origin

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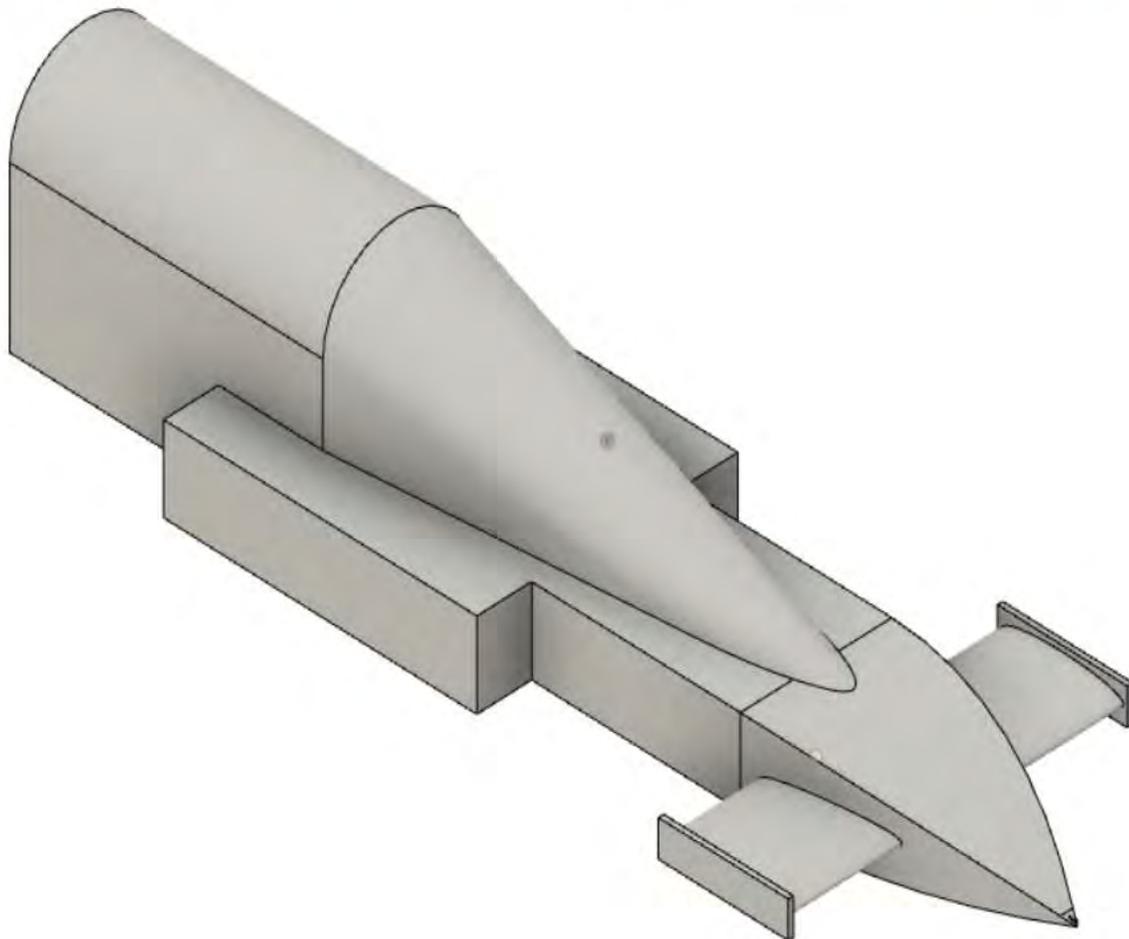
XZ

YZ

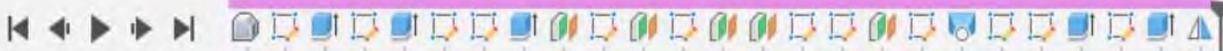
Bodies

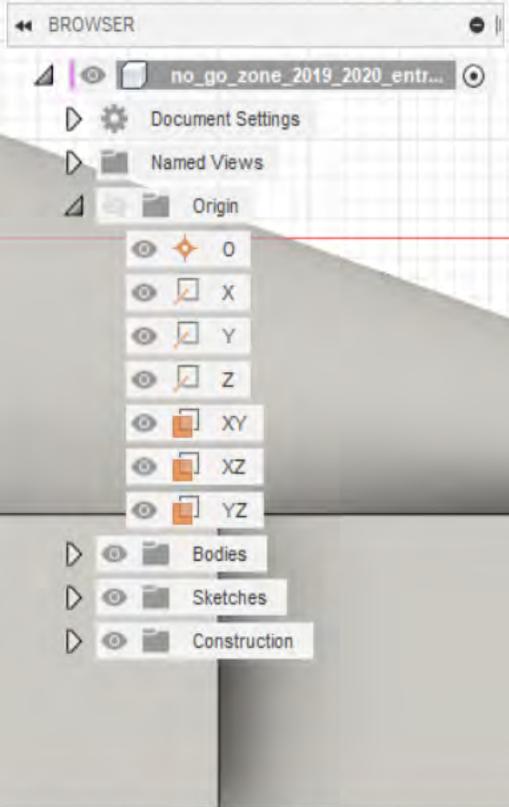
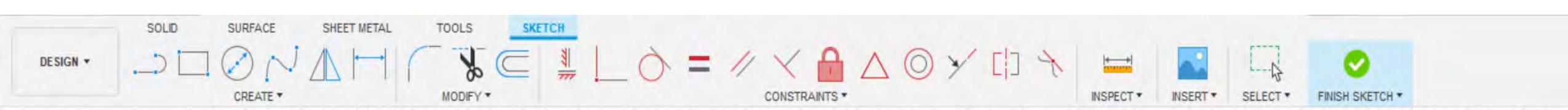
Sketches

Construction

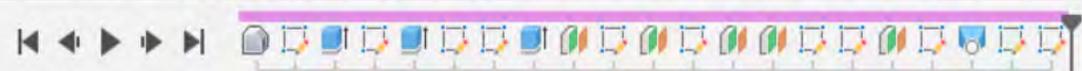
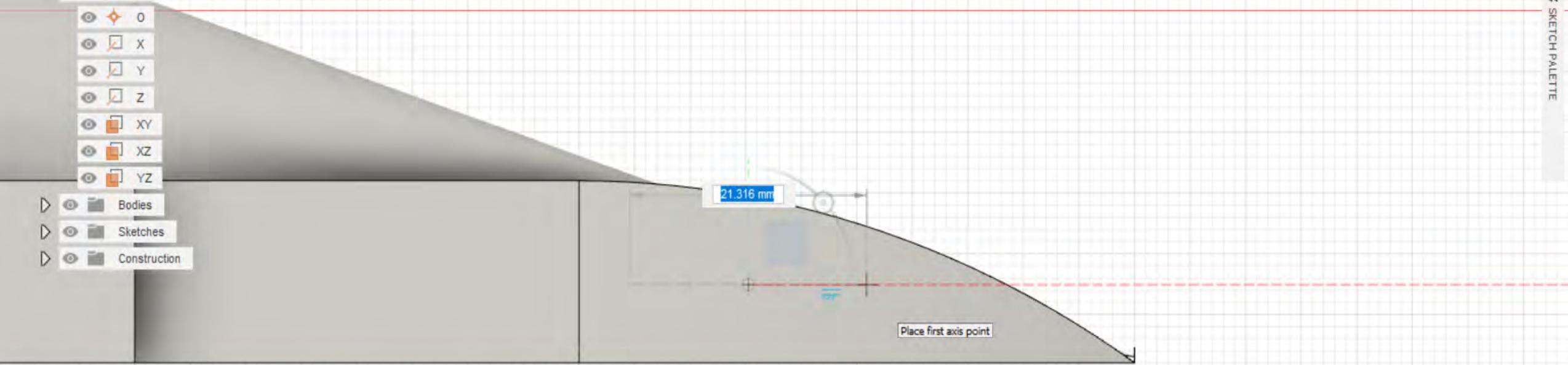


COMMENTS



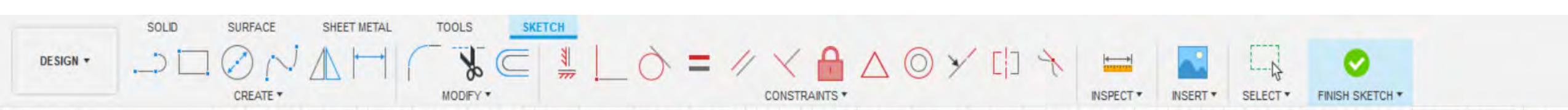


- Using the ellipse tool, create an ellipse shape.



DESIGN ▾ SOLID SURFACE SHEET METAL TOOLS **SKETCH**

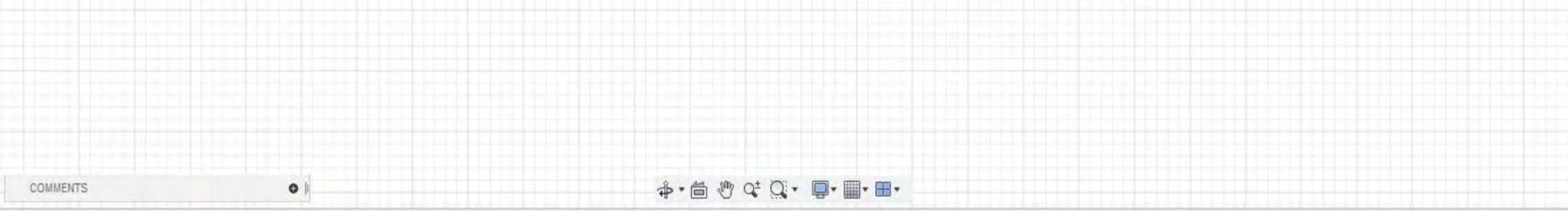
CREATE ▾ MODIFY ▾ CONSTRAINTS ▾ INSPECT ▾ INSERT ▾ SELECT ▾ FINISH SKETCH ▾



BROWSER

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- Origin
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4.445 mm

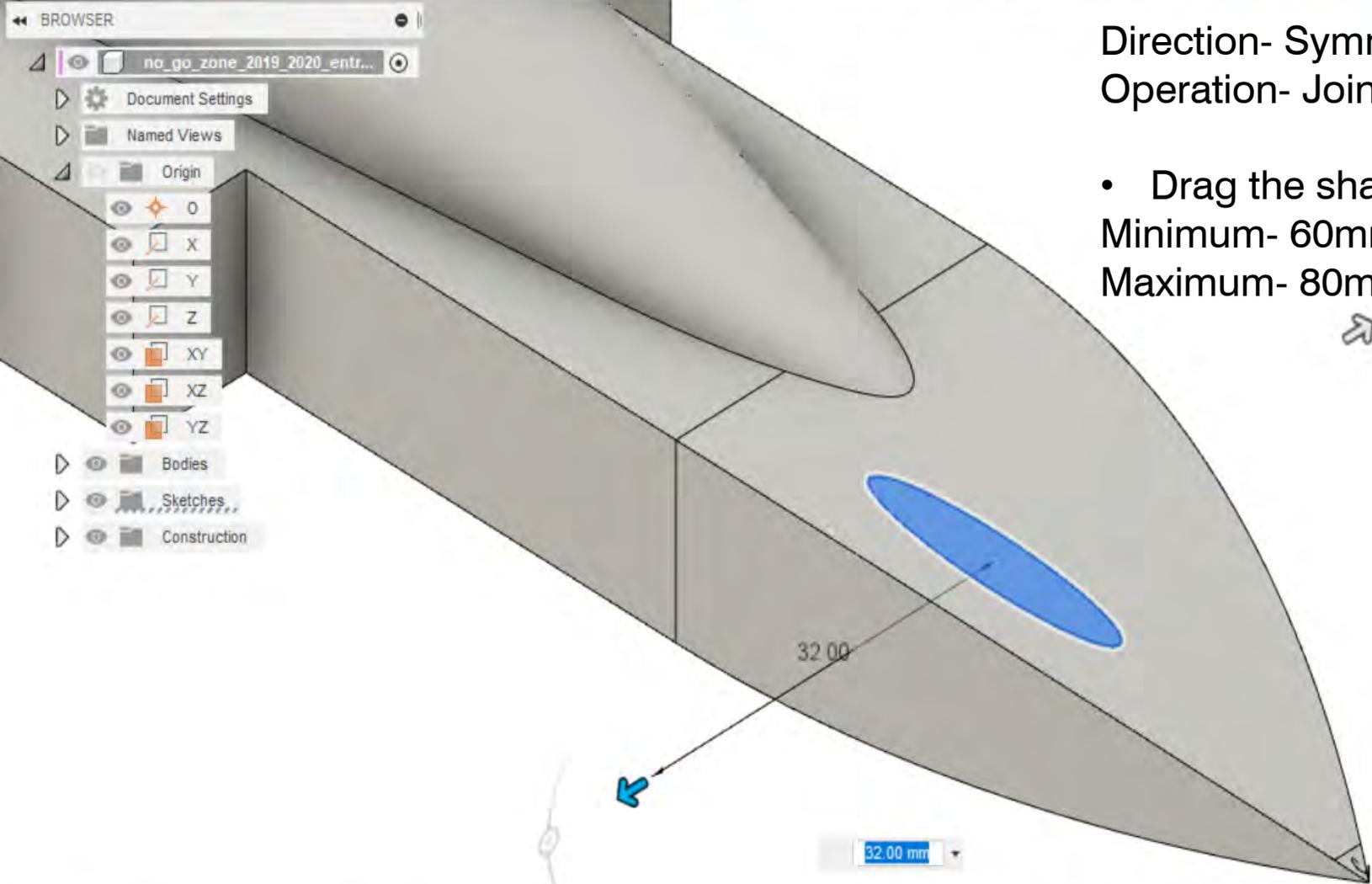
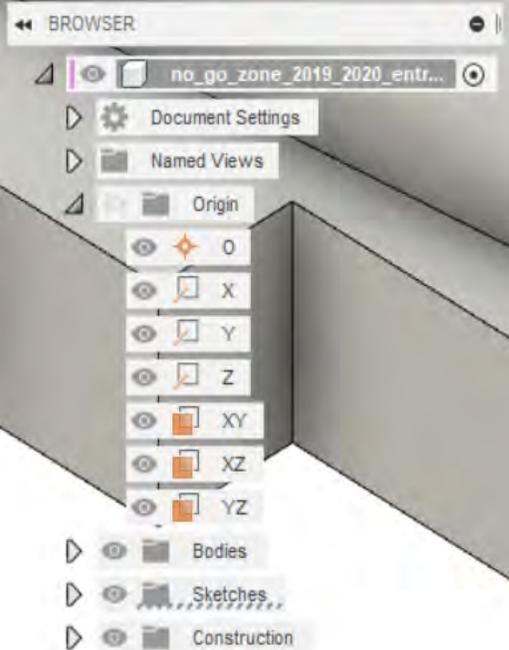
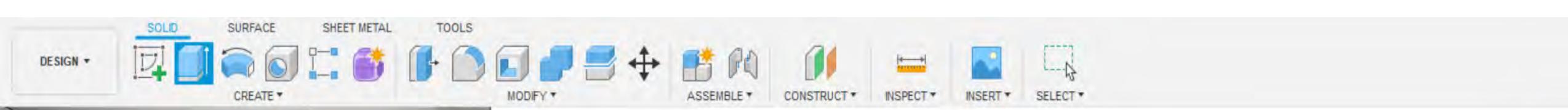
Place point on ellipse

RIGHT

SKETCH PALETTE

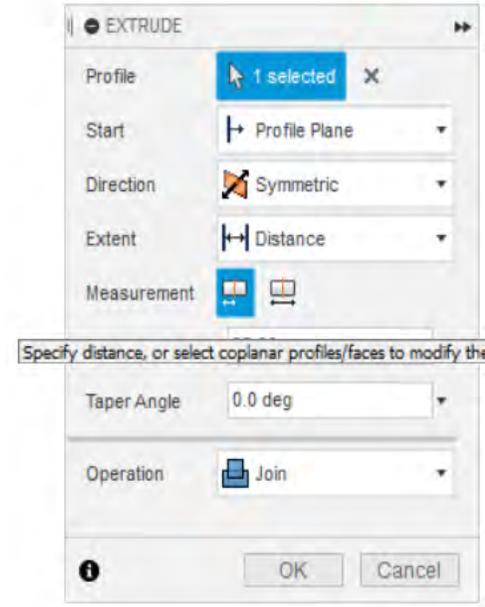
COMMENTS





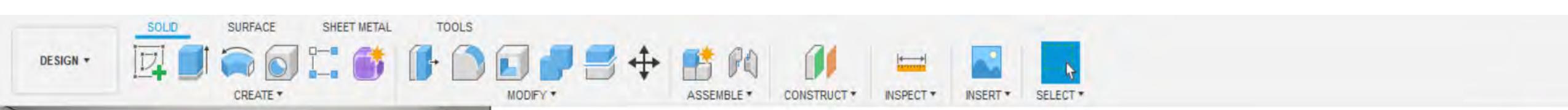
## Direction- Symmetric Operation- Join

- Drag the shape out;  
Minimum- 60mm  
Maximum- 80mm



1 Profile | Area : 82.119 mm^2

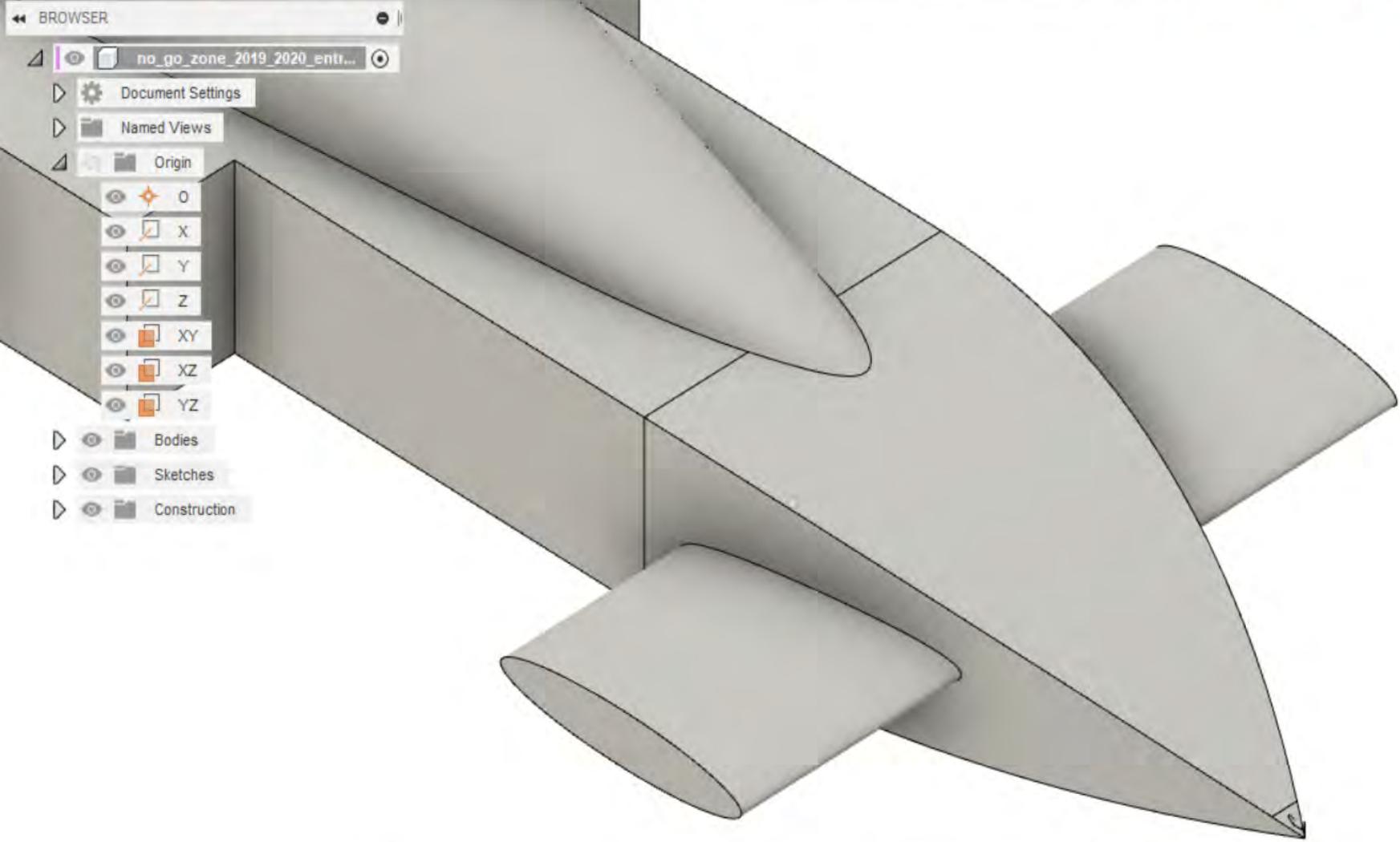




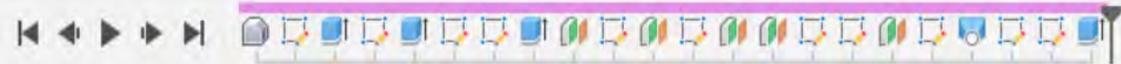
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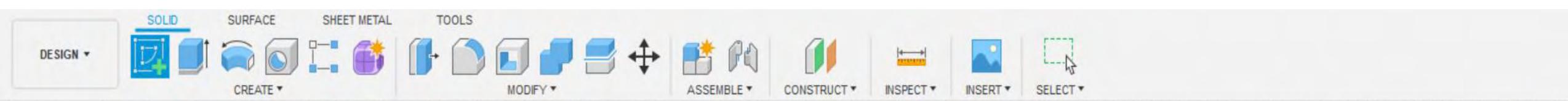
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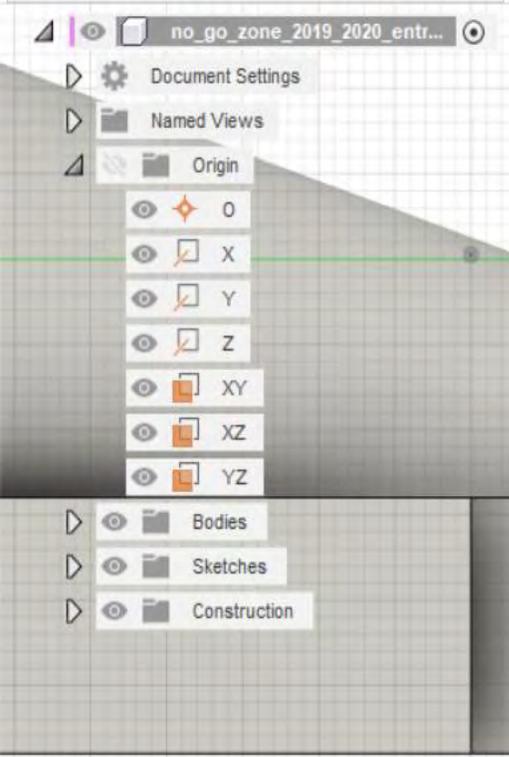


COMMENTS

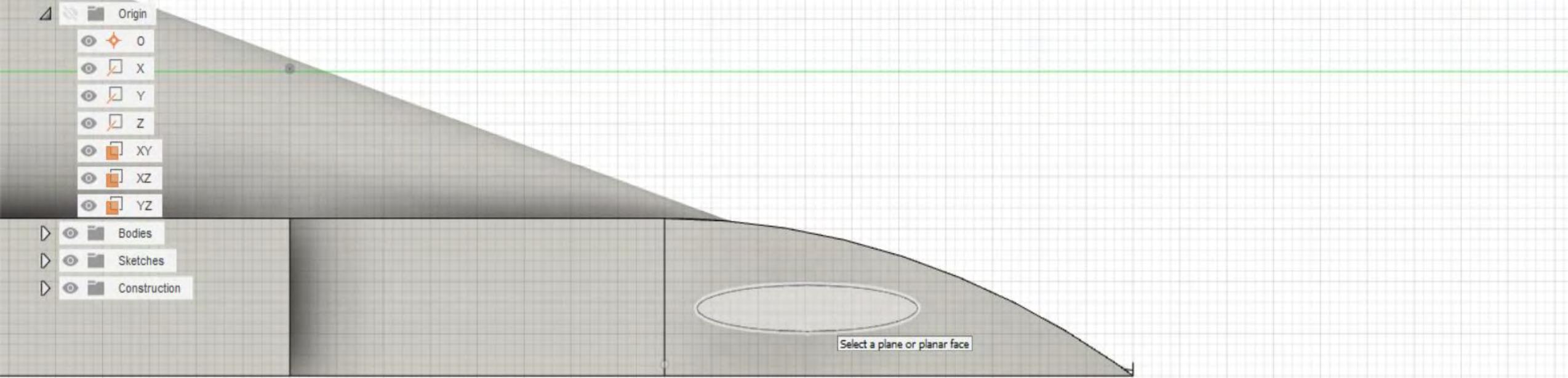




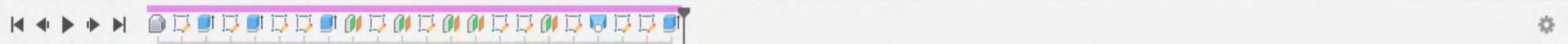
BROWSER

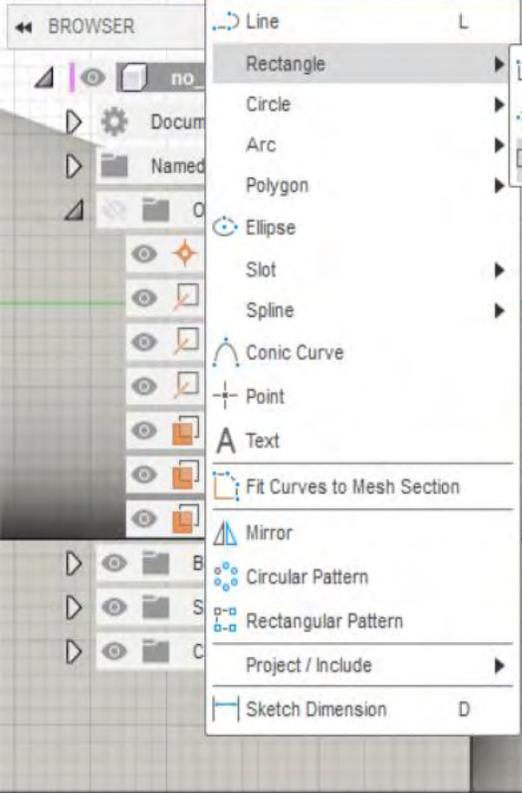
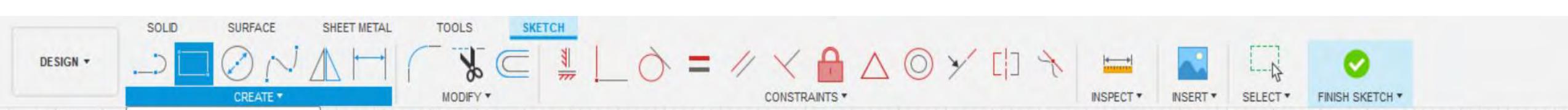


- Select 'CREATE SKETCH'
- Click the end of the ellipse shape.



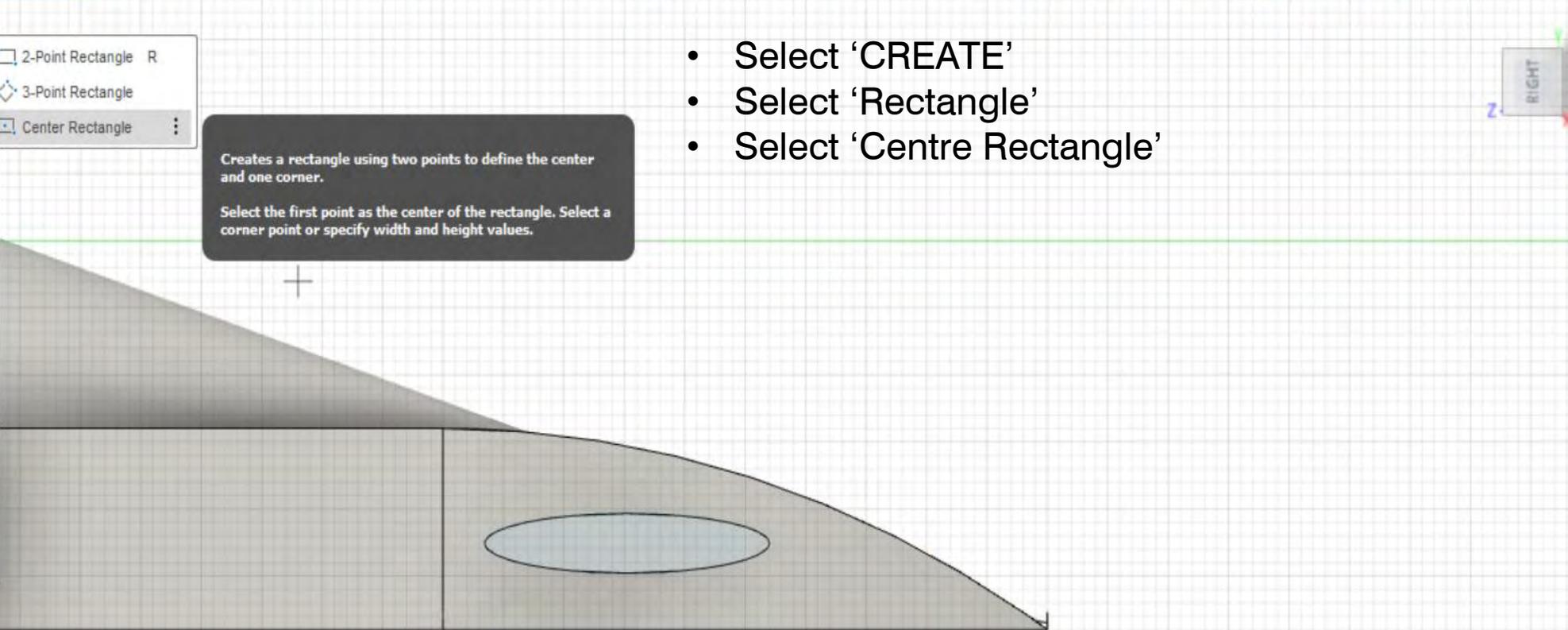
COMMENTS

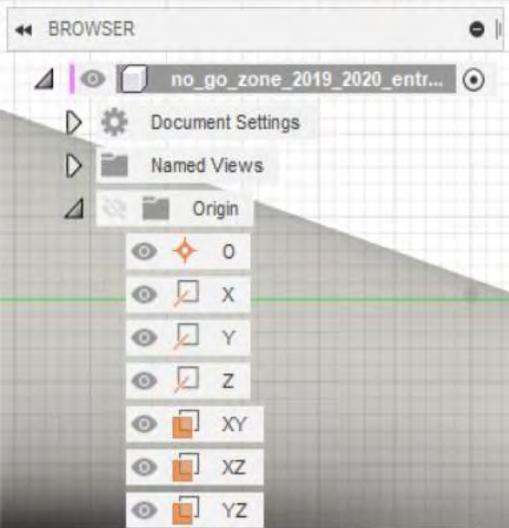
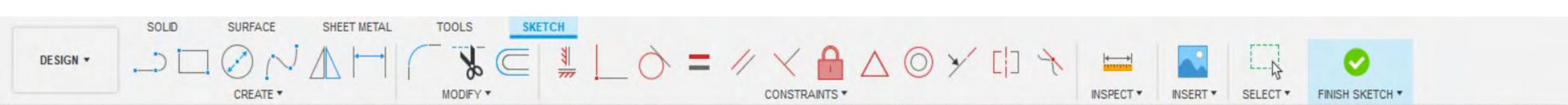




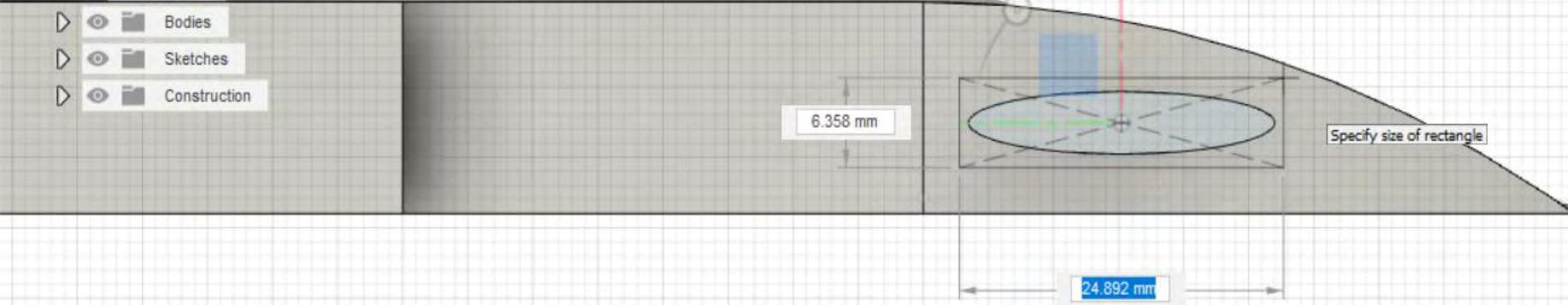
Creates a rectangle using two points to define the center and one corner.  
Select the first point as the center of the rectangle. Select a corner point or specify width and height values.

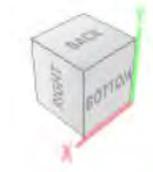
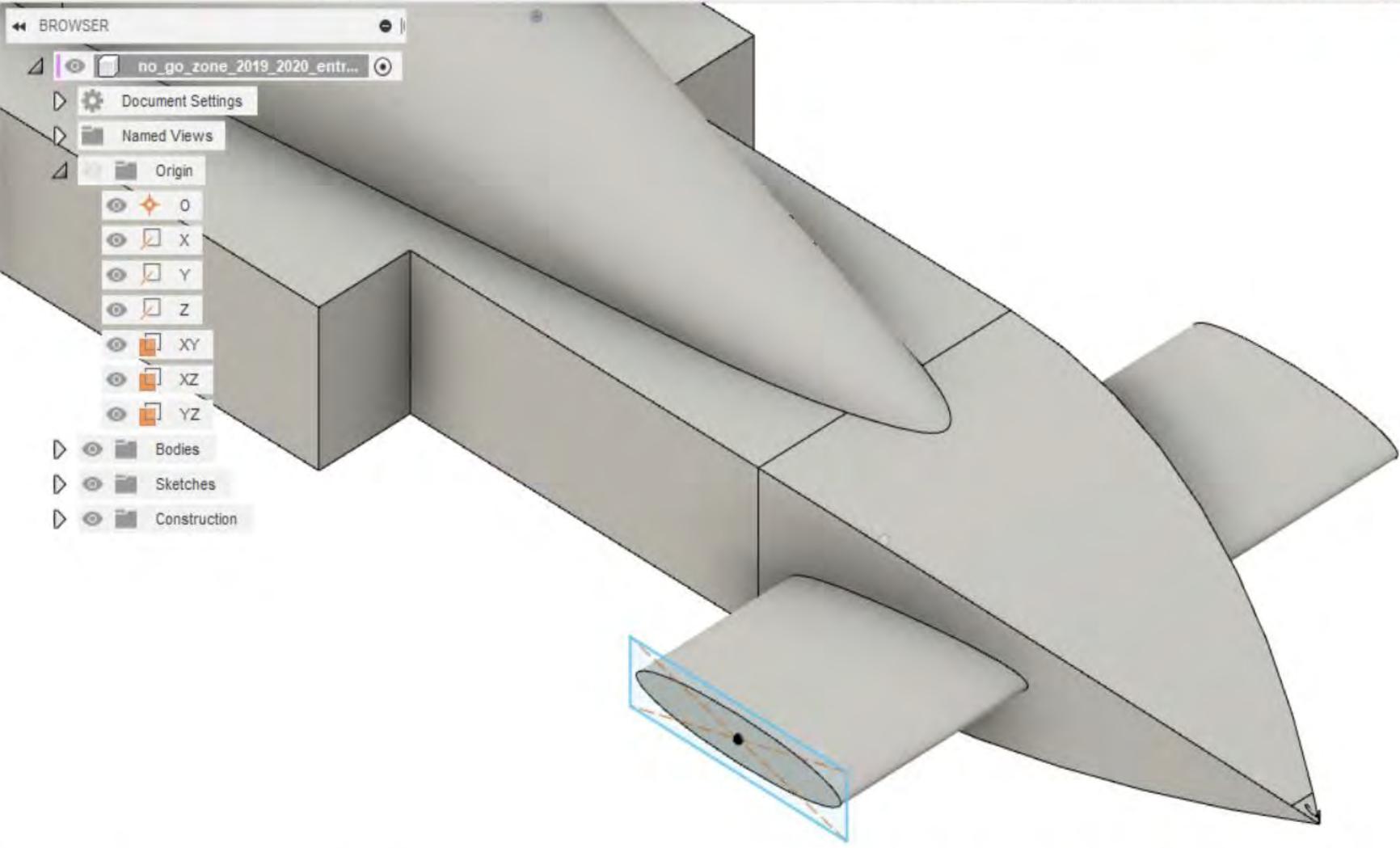
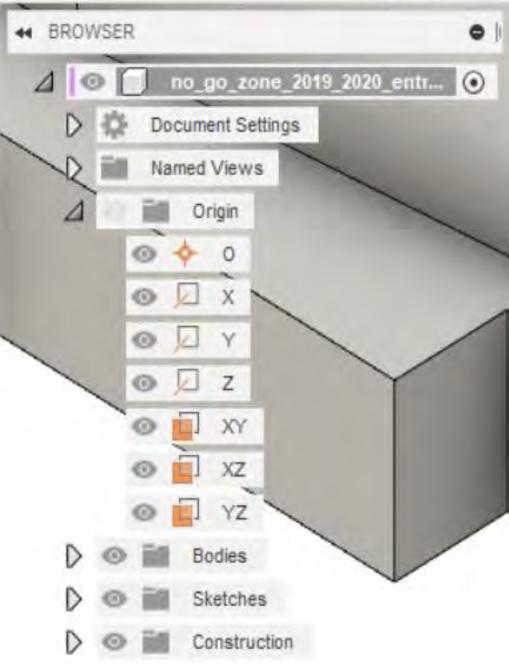
- Select 'CREATE'
- Select 'Rectangle'
- Select 'Centre Rectangle'

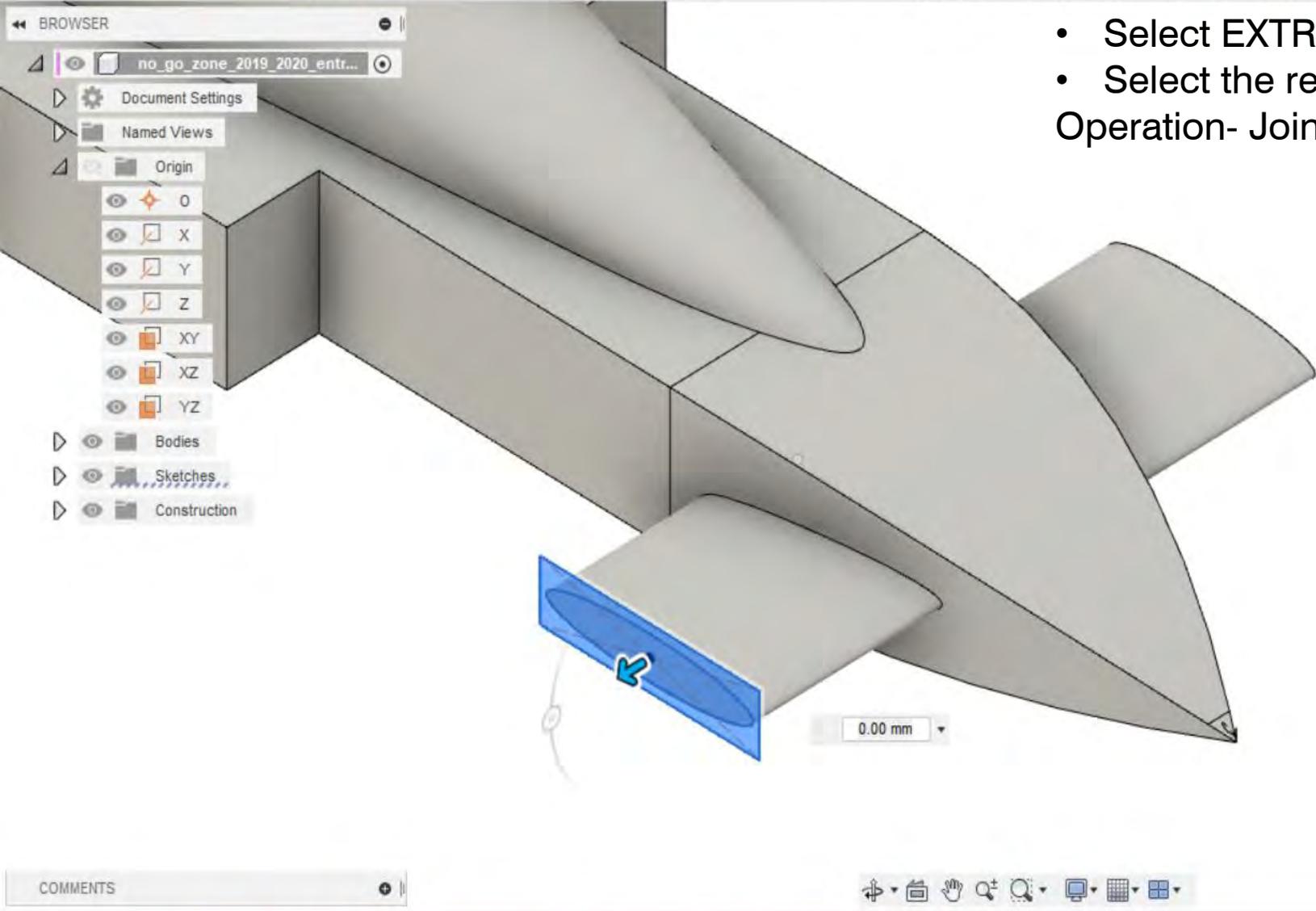




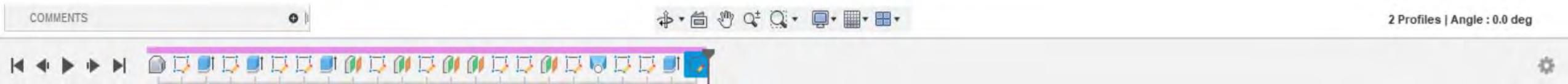
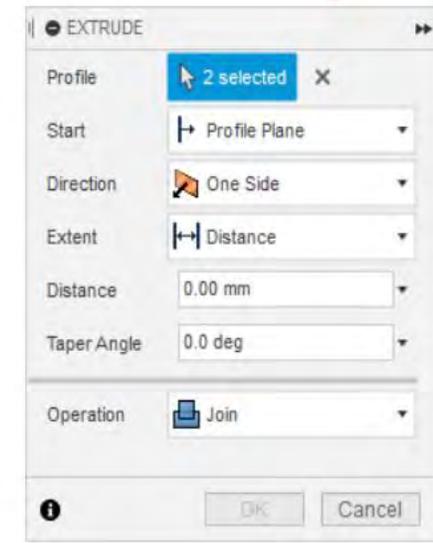
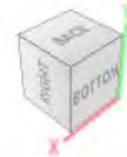
- Select the middle of the ellipse.
- Create a rectangle

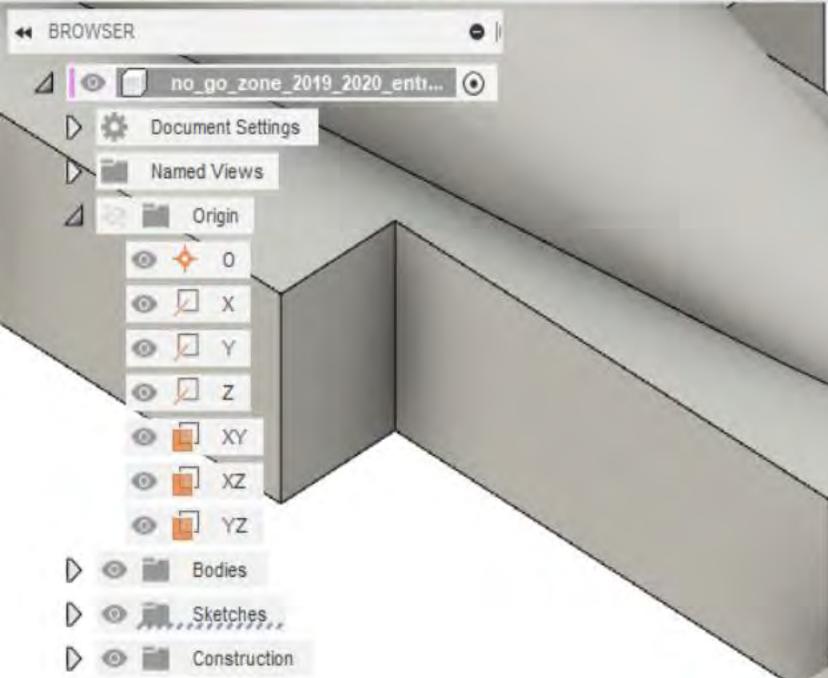
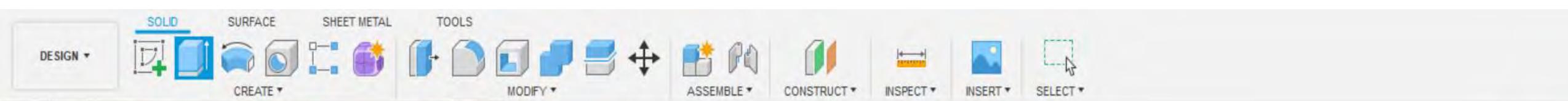






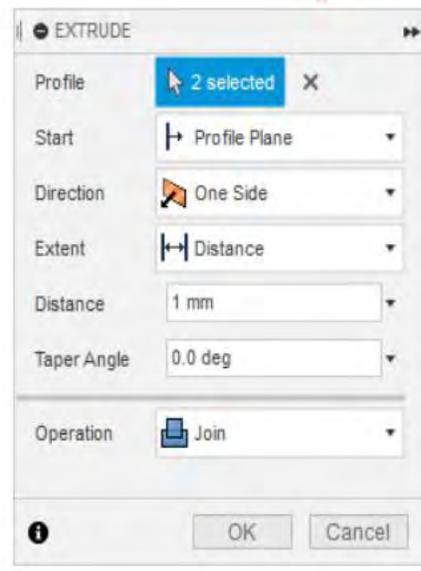
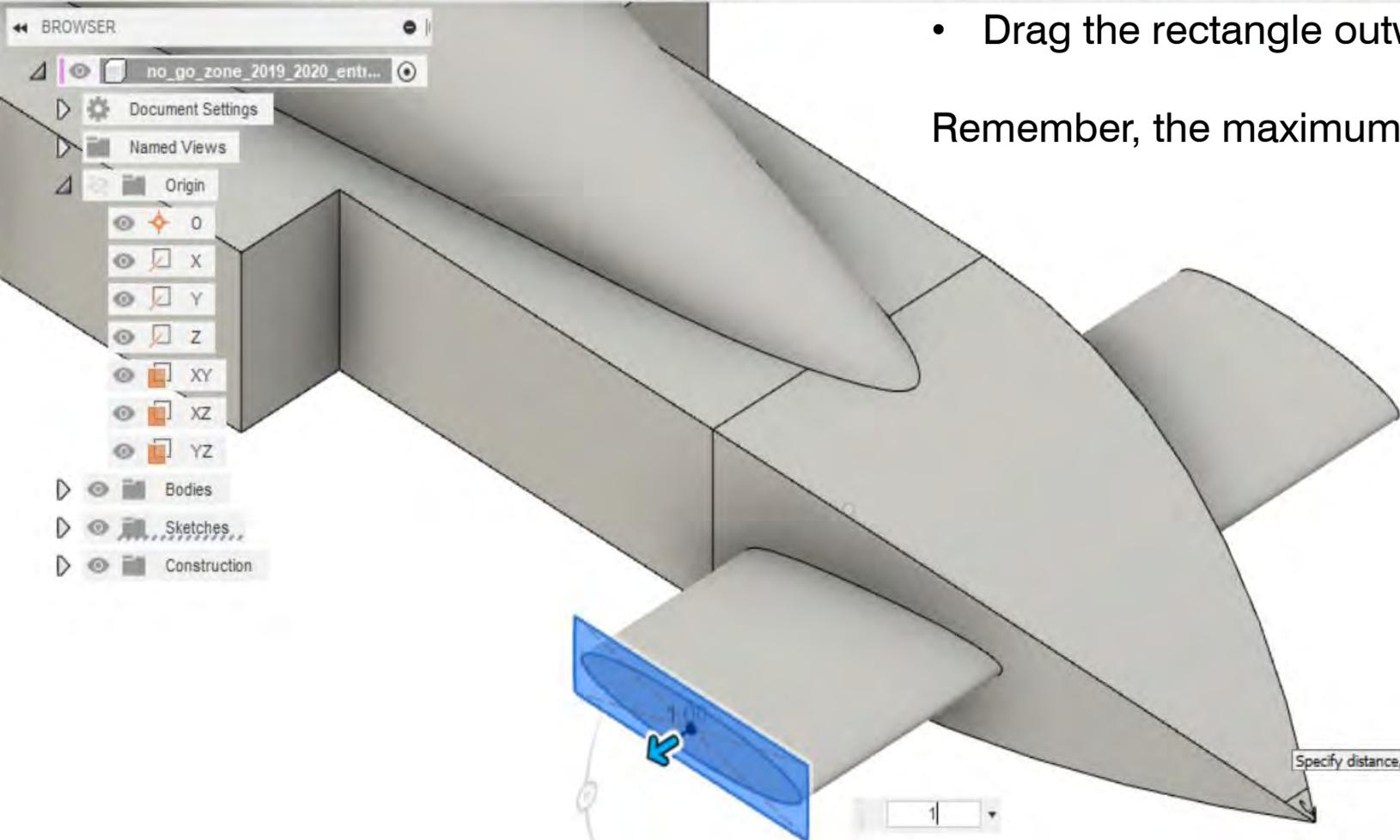
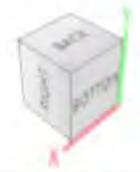
- Select EXTRUDE.
  - Select the rectangle made.
- Operation- Join





- Drag the rectangle outwards.

Remember, the maximum length of the wing- 80mm



Specify distance, or select coplanar profiles/faces to modify the selection



DESIGN ▾

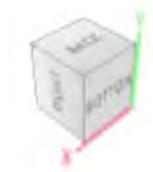
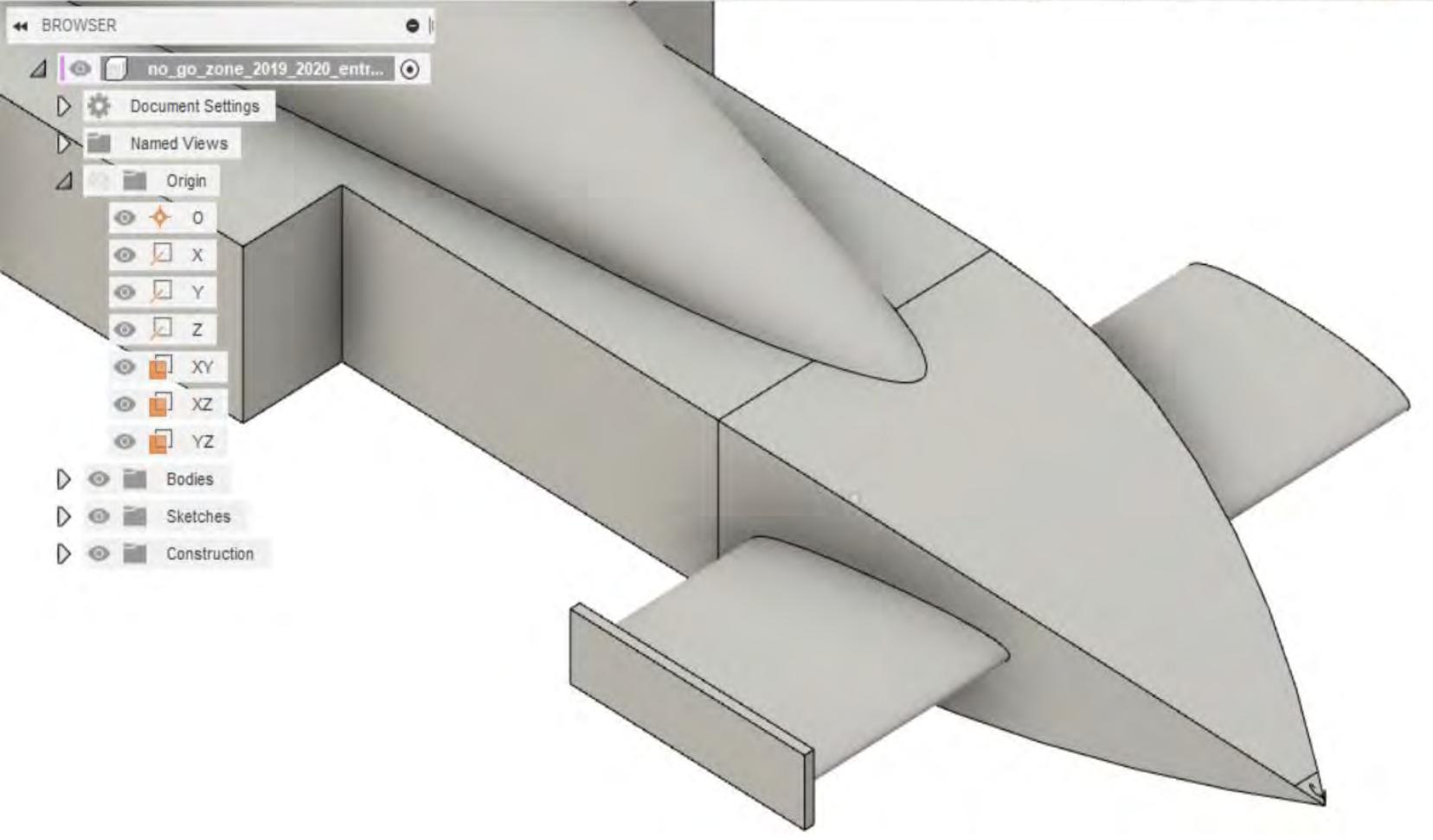
SOLID SURFACE SHEET METAL TOOLS

CREATE ▾ MODIFY ▾ ASSEMBLE ▾ CONSTRUCT ▾ INSPECT ▾ INSERT ▾ SELECT ▾

BROWSER

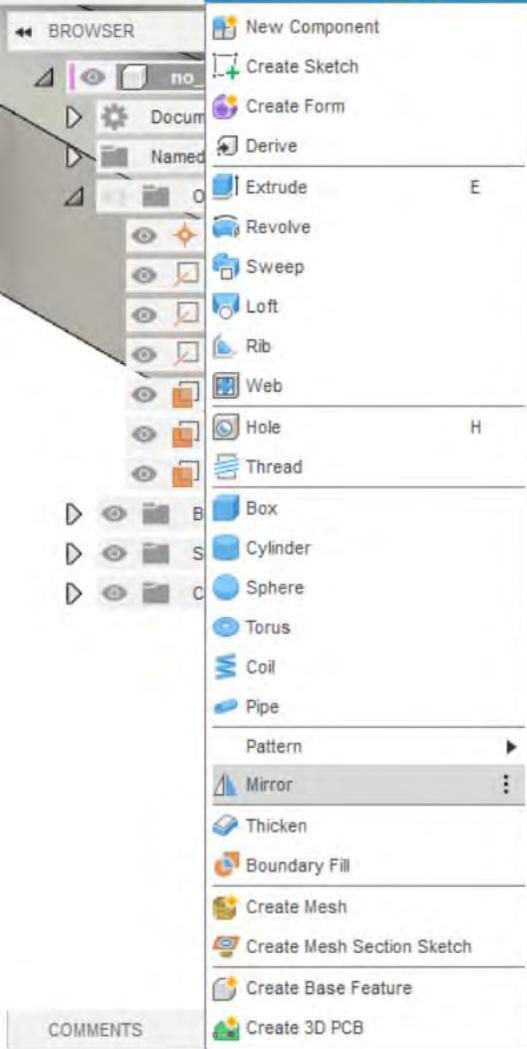
no\_go\_zone\_2019\_2020\_entr...

- Document Settings
- Named Views
- Origin
  - 0
  - X
  - Y
  - Z
  - XY
  - XZ
  - YZ
- Bodies
- Sketches
- Construction

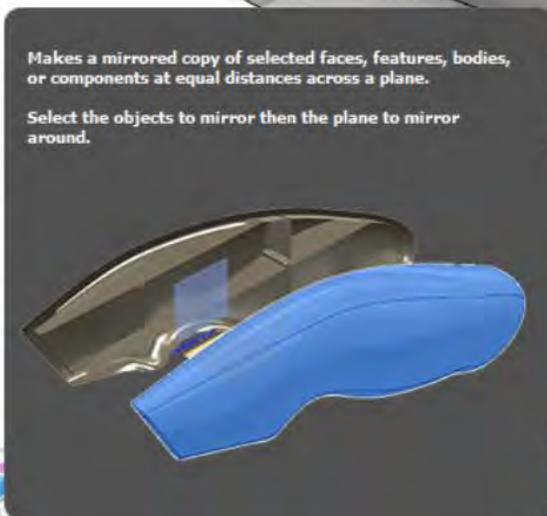


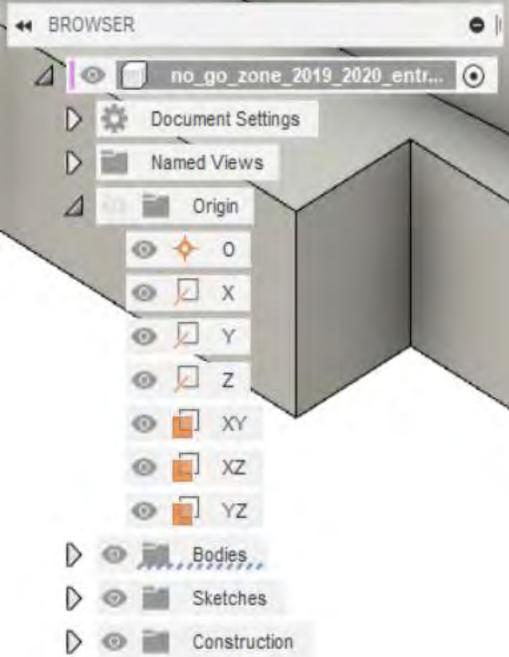
COMMENTS



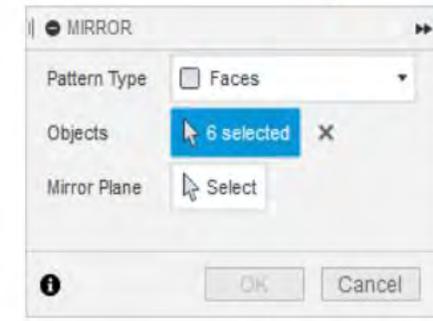


- Select CREATE
- Select Mirror.





- Select the rectangle you have created on the end of the ellipse.

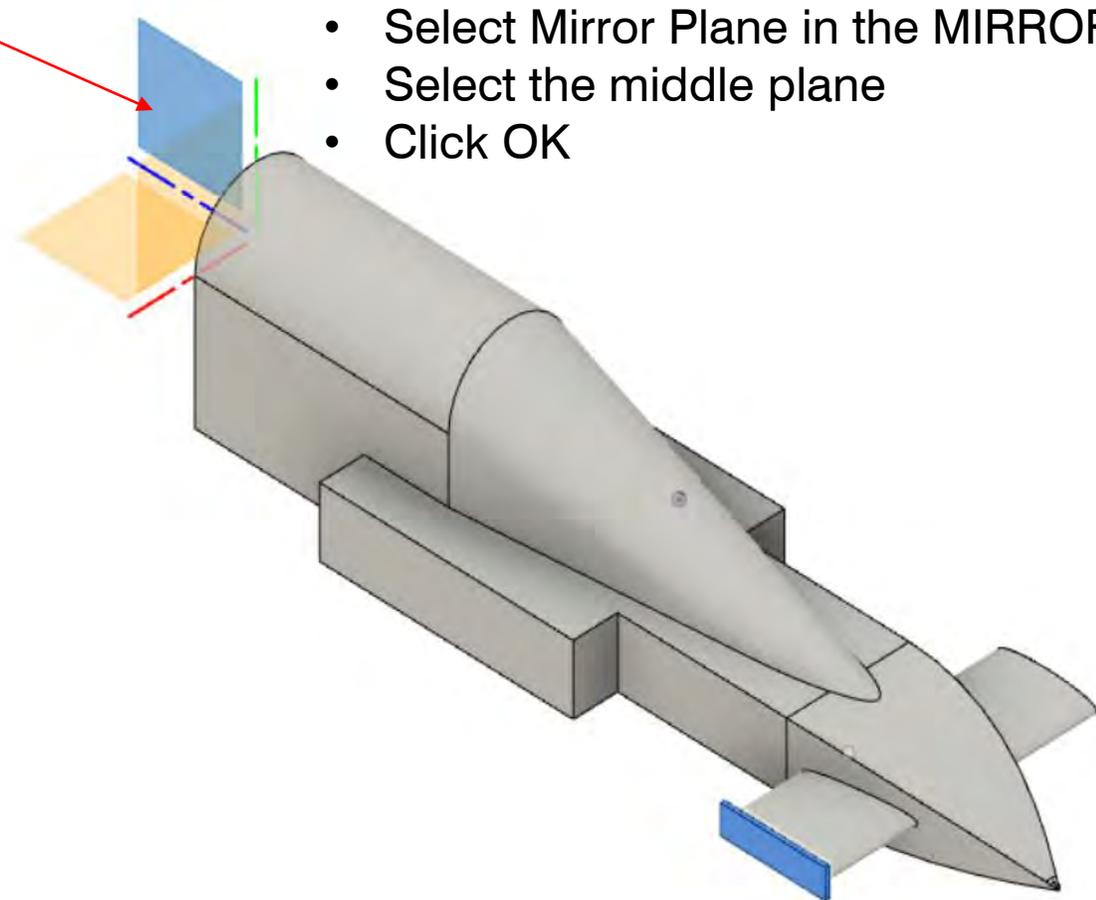
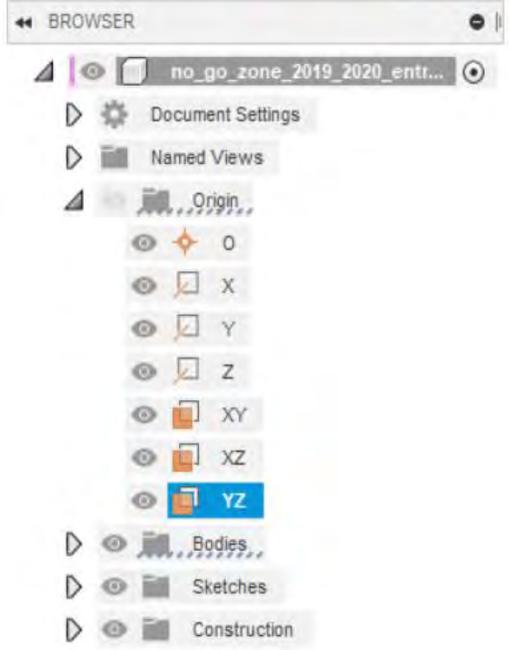
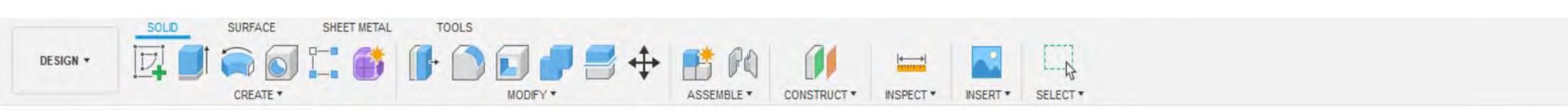


Select faces or features to mirror

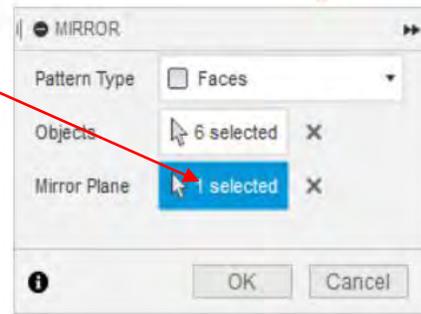


Multiple selections





- Select Mirror Plane in the MIRROR menu
- Select the middle plane
- Click OK



DESIGN ▾

SOLID

SURFACE

SHEET METAL

TOOLS



CREATE ▾

MODIFY ▾

ASSEMBLE ▾

CONSTRUCT ▾

INSPECT ▾

INSERT ▾

SELECT ▾

BROWSER

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Document Settings

Named Views

Origin

0

X

Y

Z

XY

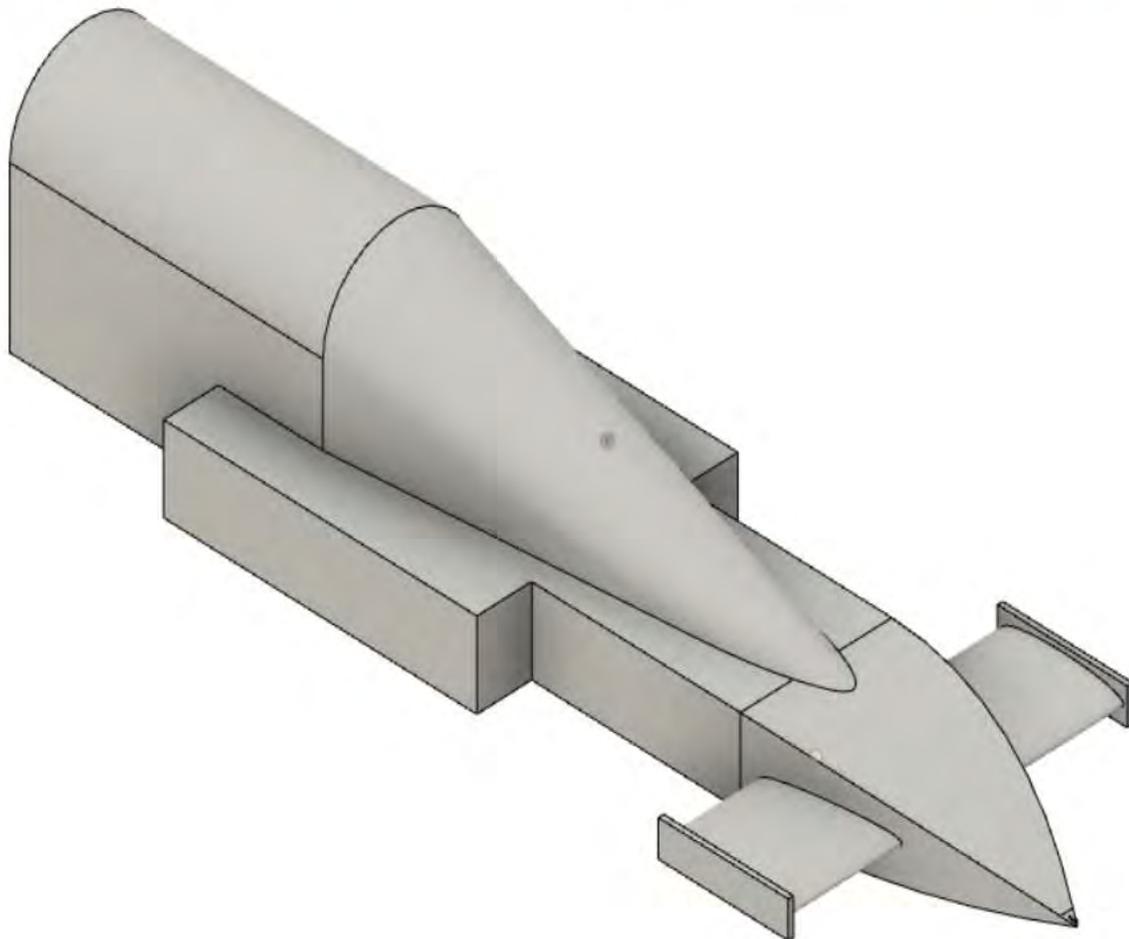
XZ

YZ

Bodies

Sketches

Construction



COMMENTS

