Departamento de Computação

PROJETO E MANUFATURA ASSISTIDOS POR COMPUTADOR 27260 A

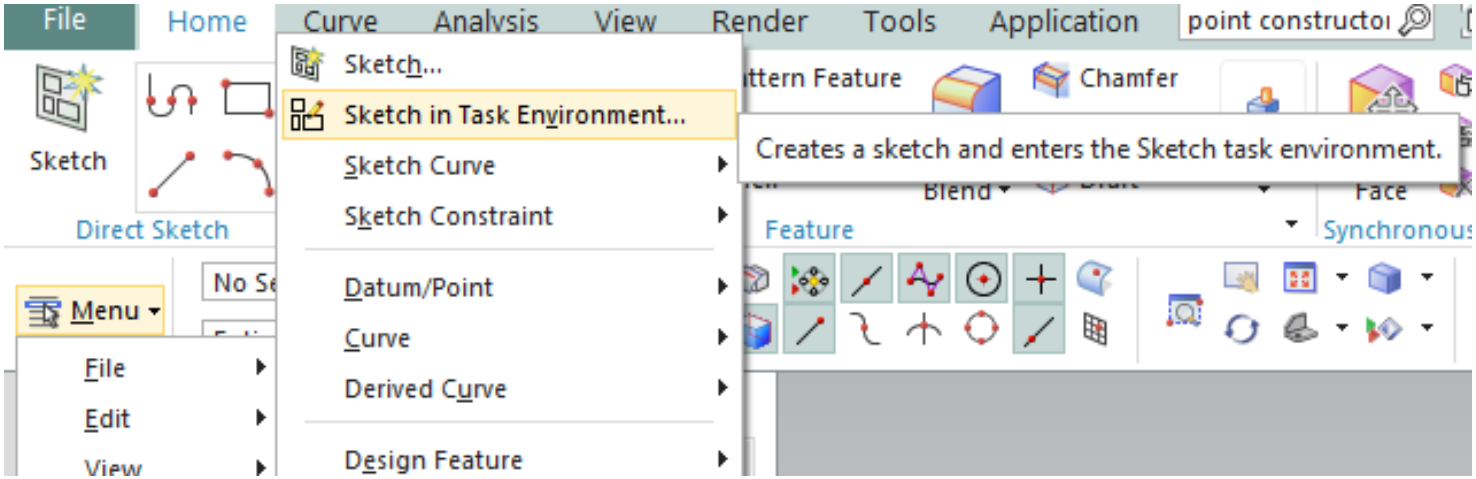
AULA 03 – IMPELLER LOWER CASING

Departamento de Computação
Prof. Kelen Cristiane Teixeira Vivaldini

Aula 03

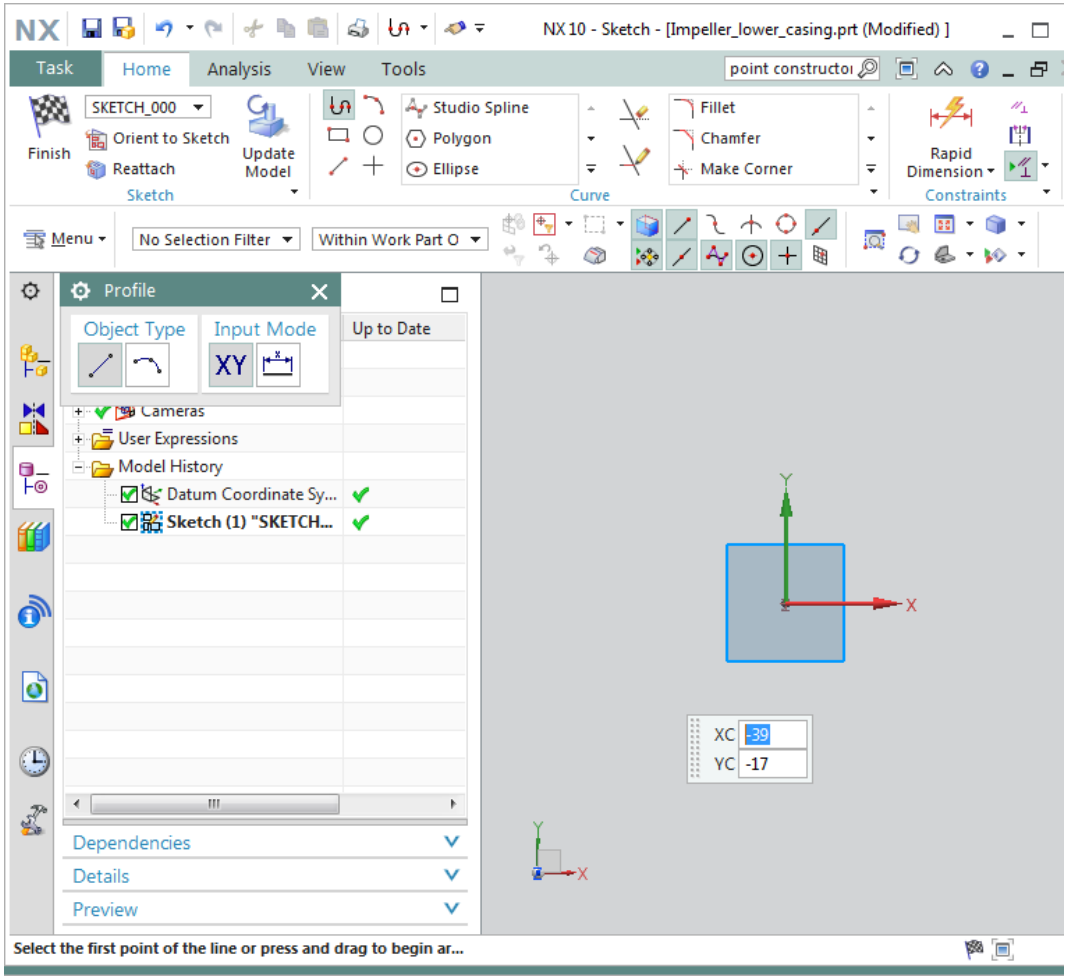
1. Create a new file in mm and save it as **Impeller_lower_casing.prt**

2. Click **Menu →Insert →Sketch In Task Environment** or click **Sketch In Task Environment** icon



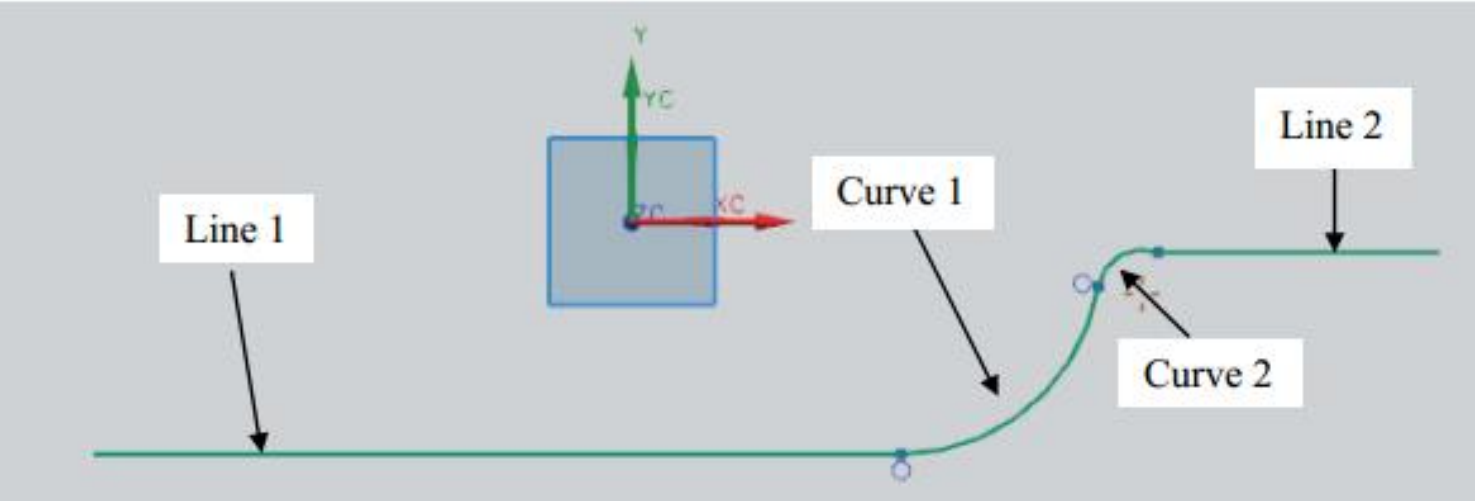
Aula 03

3. Set the sketching plane as the **XC-YC** plane



Aula 03

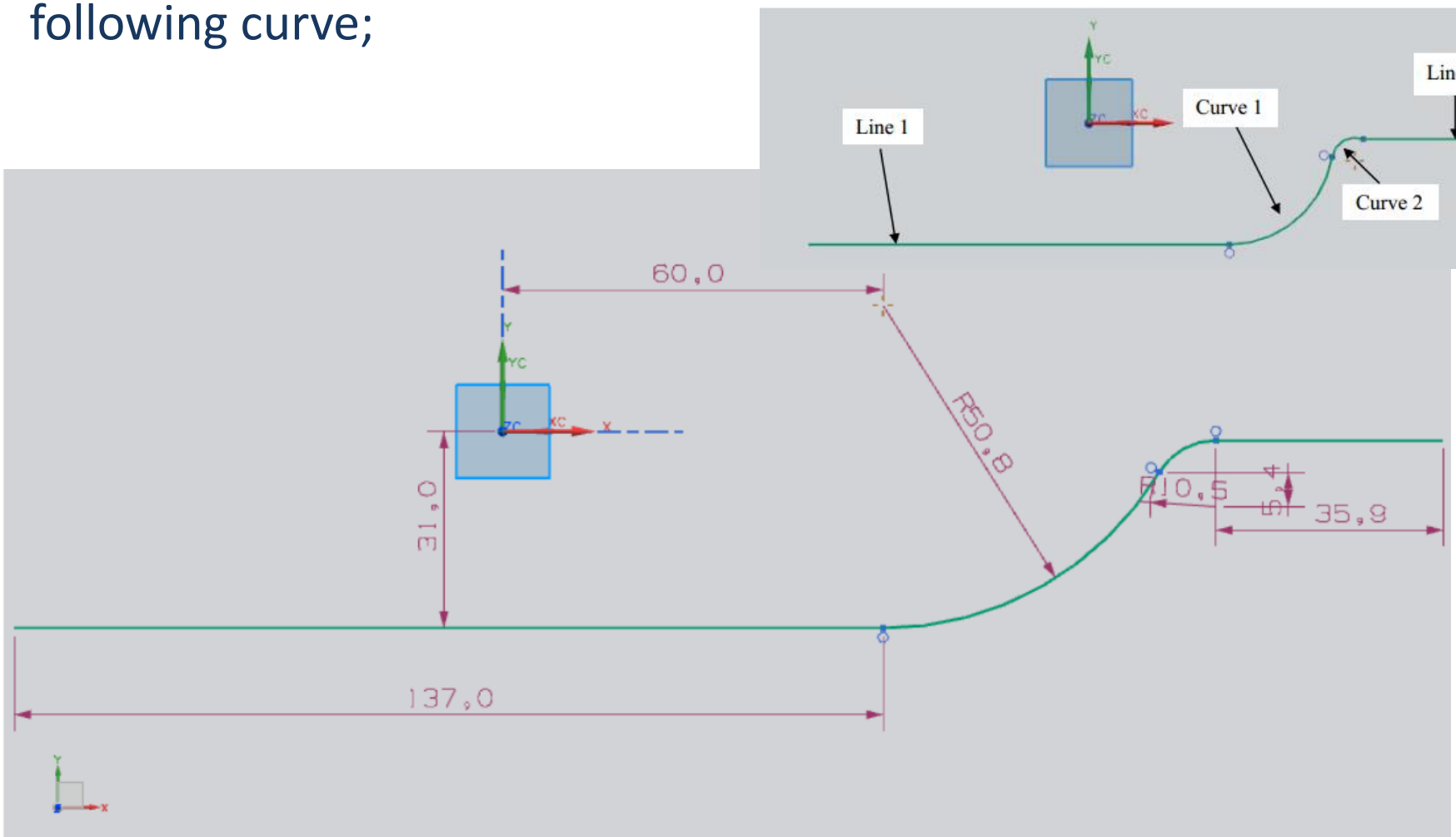
4. Make sure the **Profile** window is showing and draw the following curve;



Obs. Don’t worry, the software creates dimensions as sketch. It will be edited later.

Aula 03

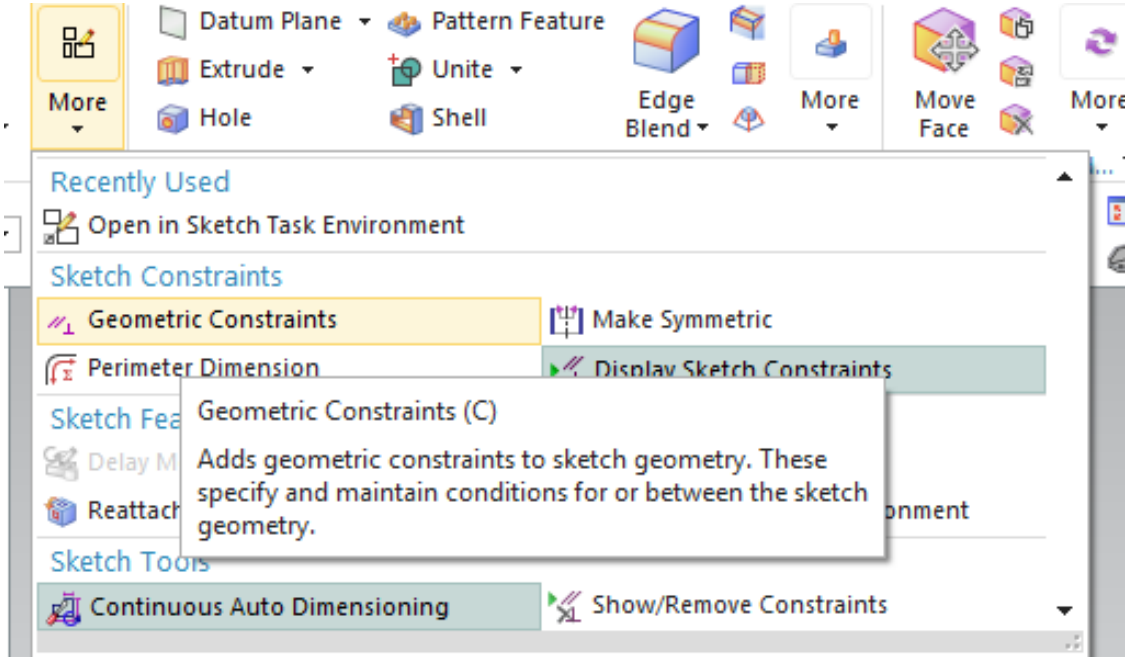
4. Make sure the **Profile** window is showing and draw the following curve;



5. Create a point at the origin (0, 0, 0) by clicking the plus sign in the **Direct Sketch** group.

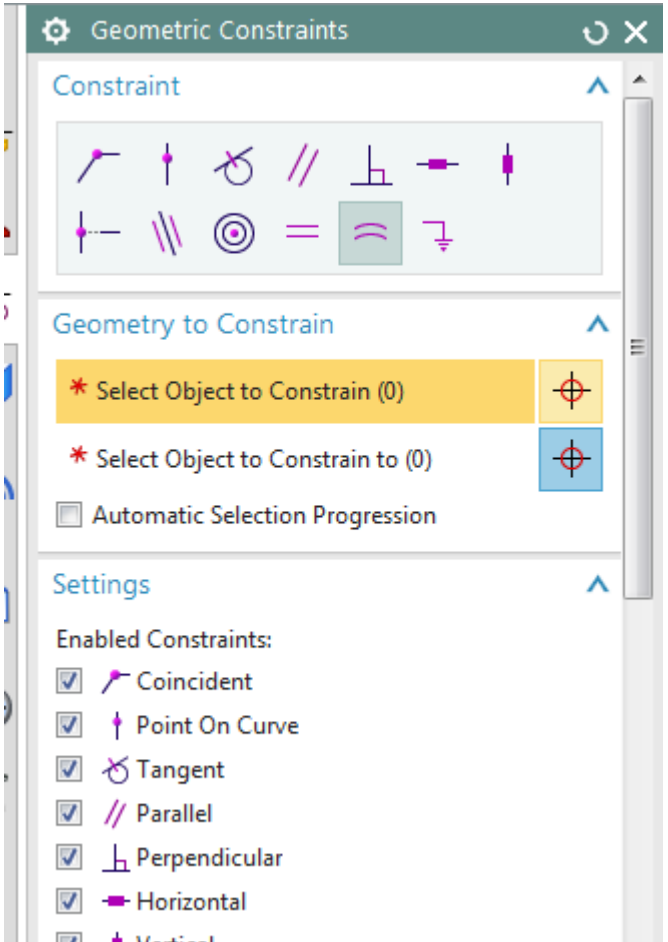
Next, we will constrain the curve:

6. Click on the **Geometric Constraints**  icon



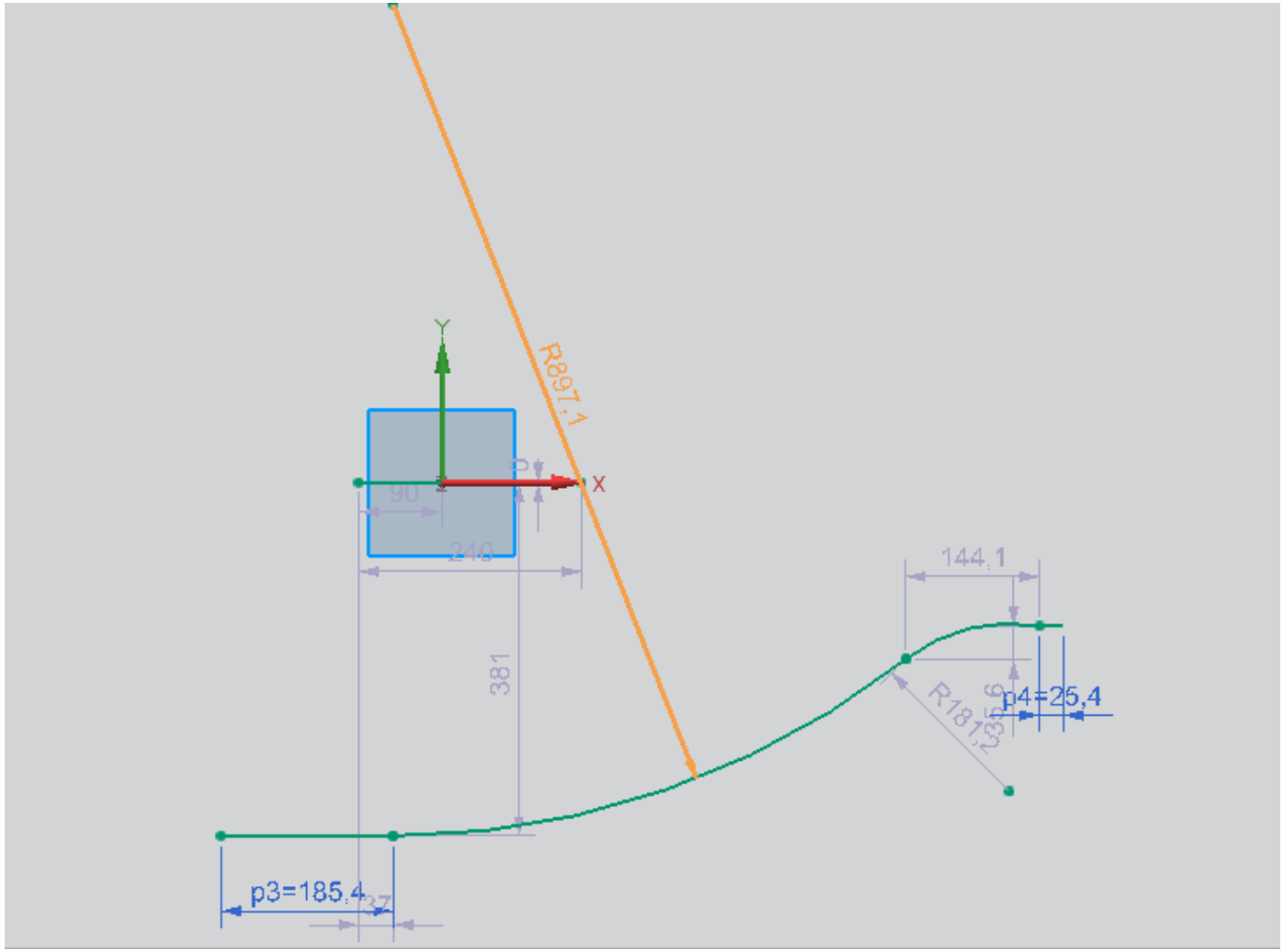
Aula 03

7. Select the point at the origin and click on the **Fixed** constraint icon  (if you cannot see this icon, click on Settings and check it as shown on the right)

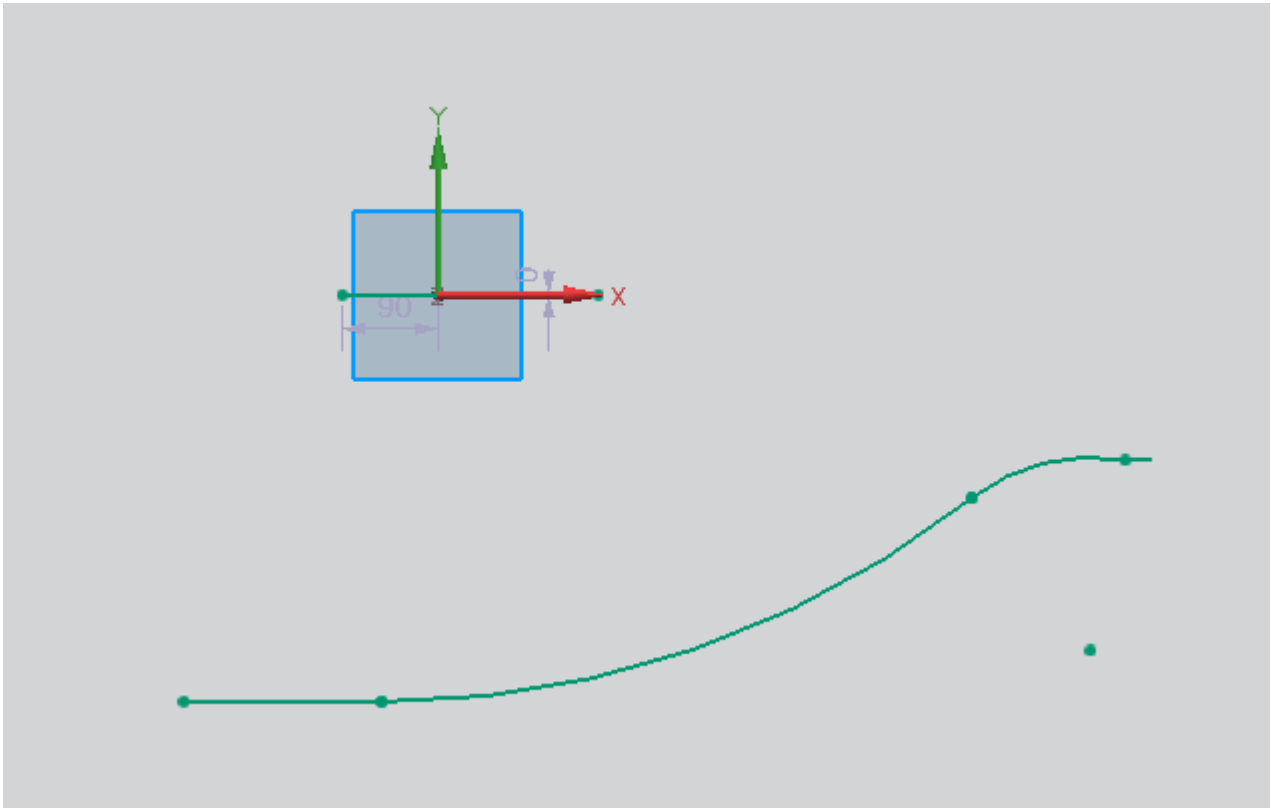


Aula 03

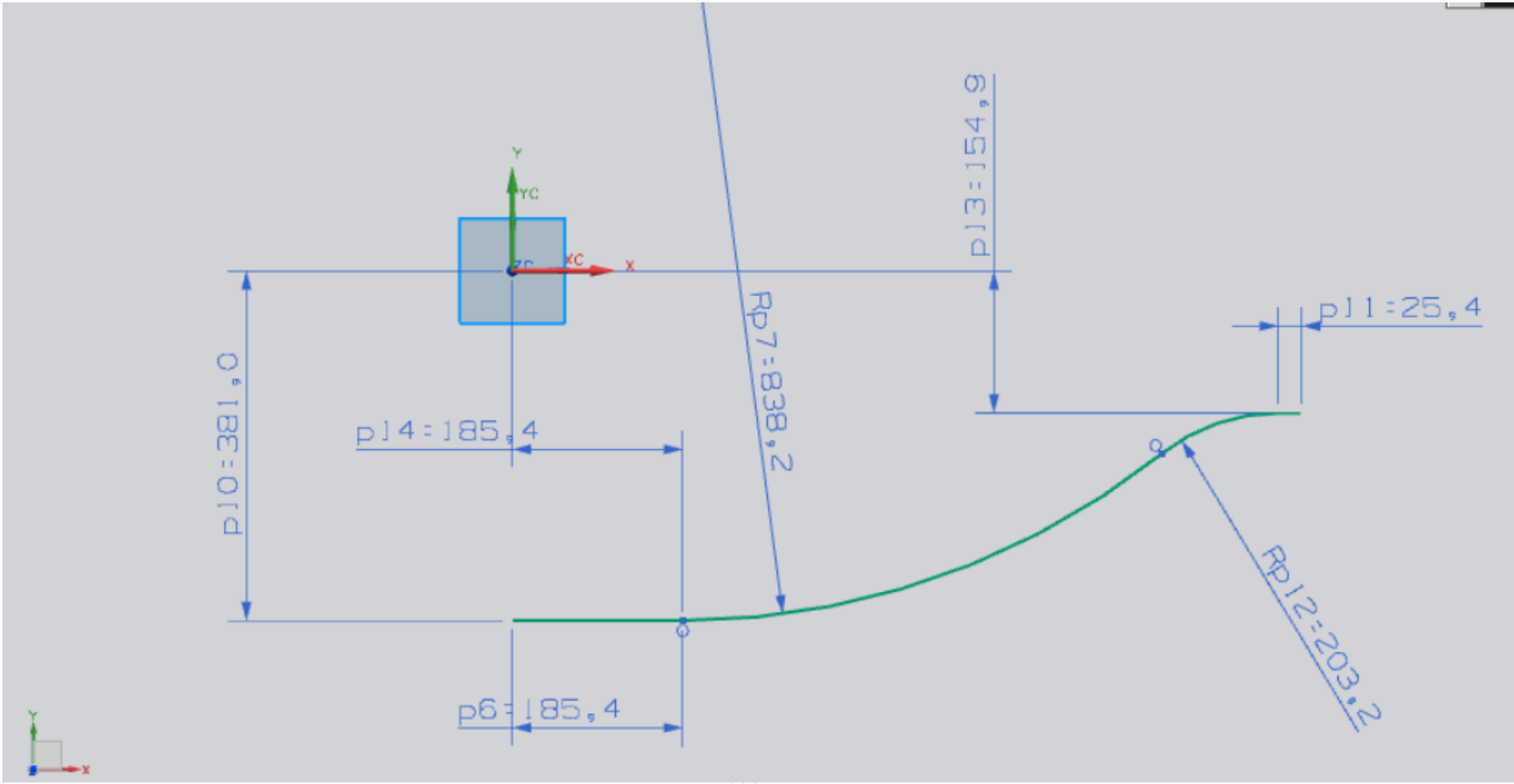
8. Make all of the curve-lines and curve-curve joints **Tangent**
9. Apply the dimensional constraints as shown in the figure below



10. Select all the dimensions.
11. Right click and **Hide** the dimensions

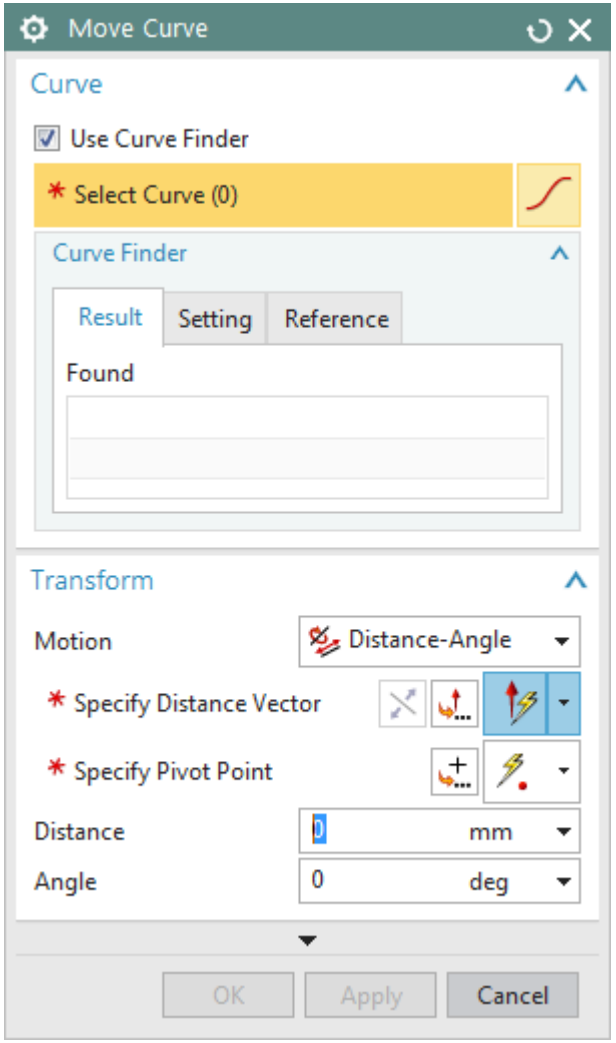


Aula 03


Y
YC
ZC
XC
X
p13=154,9
p11=25,4
Rp7=838,2
p10=381,0
p14=185,4
Rp12=203,2
p6=185,4

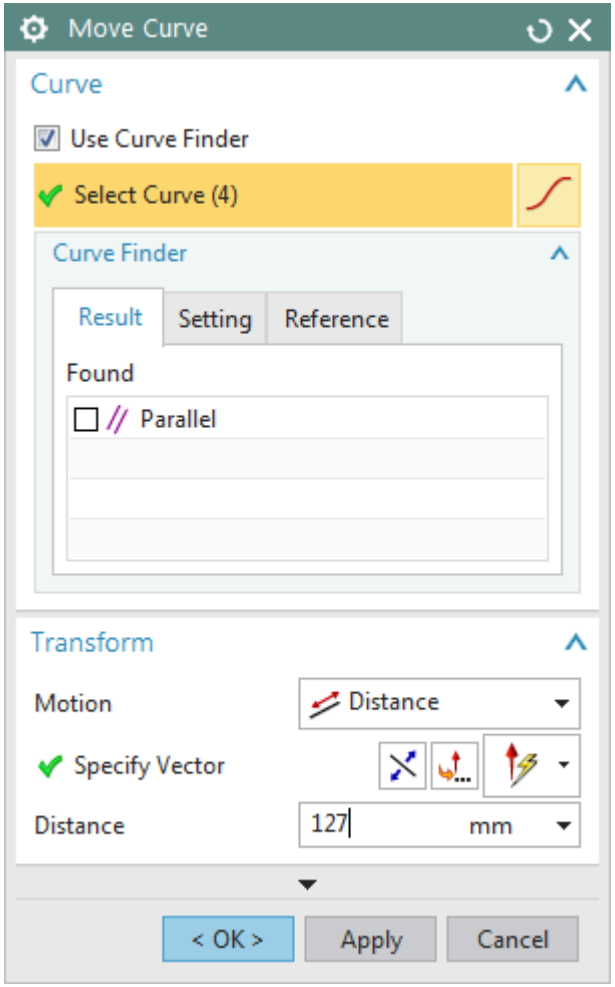
Aula 03

12. Choose **Menu →Edit →Move Object** or choose **Move Curve** from the ribbon bar

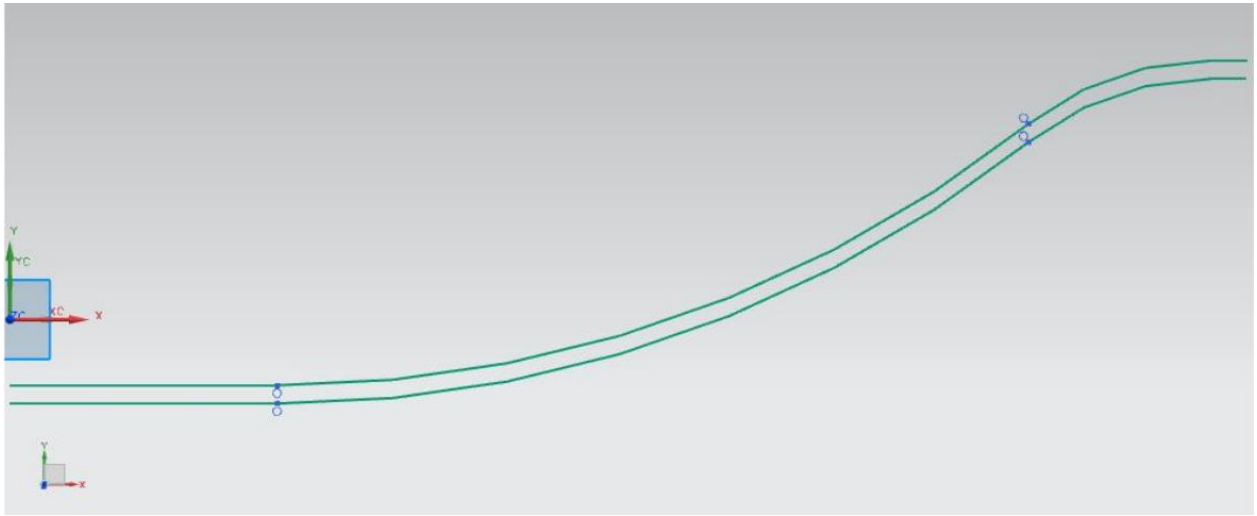


Aula 03

13. Select all the curves. You should see 4 objects being
selected in **Select Object**
14. Specify the **Motion** to be **Distance**
15. Choose **YC-Direction** in the **Specify Vector**
16. Enter the **Distance** to be **12.7 mm**

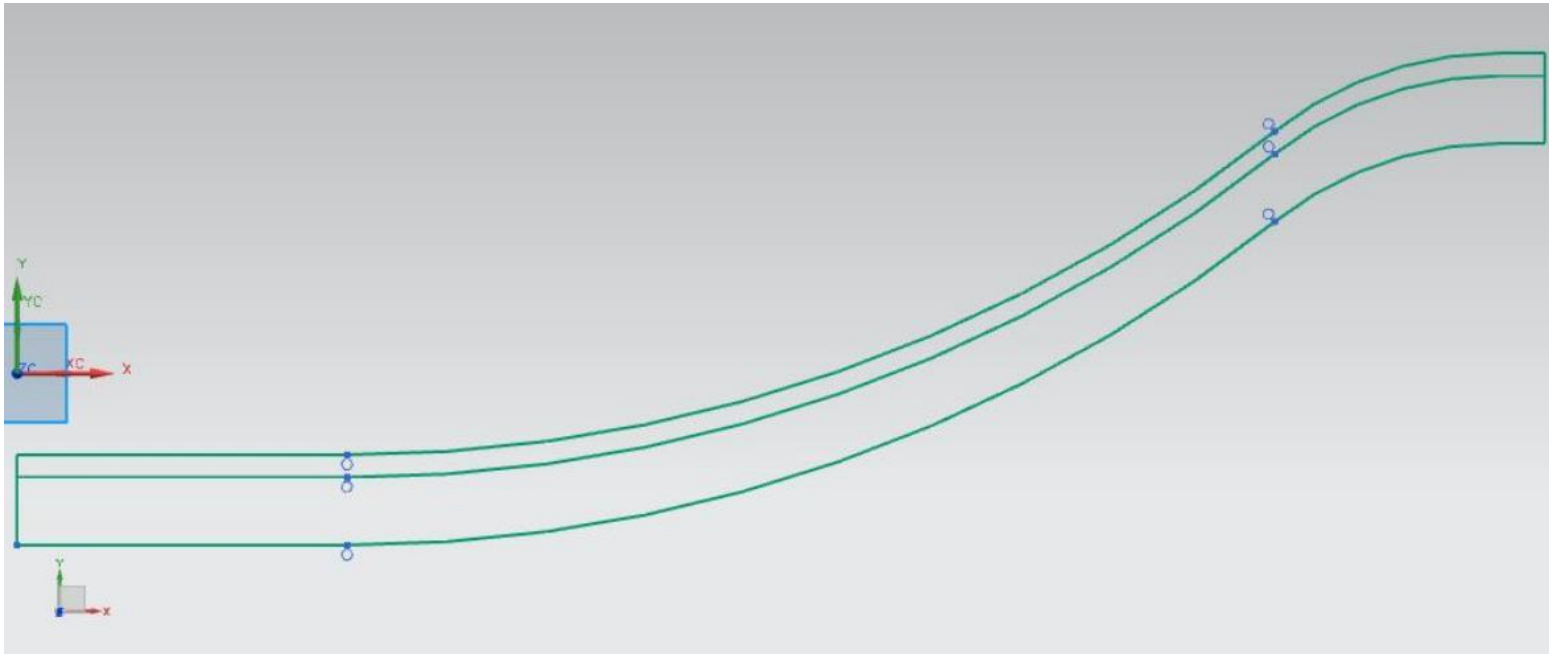


17. In the **Result** dialog box make sure you the click on the **Copy Original** radio button
18. Click **OK**
19. Then join the end-points at the two ends using the basic curves to complete the sketch.



Aula 03

20. Choose **Edit** →**Move Object** or choose **Move Curve** from the ribbon bar
21. Select the outer curve. Be sure to select all the four parts of the curve
22. Move the lower curve in the **Y-direction** by **-38.1 m**m. This is the same as translating it in the negative **YC-direction** by **38.1 inches**
23. Using **straight lines** join this curve with the inside curve of the casing. It will form a closed chain curve as shown.



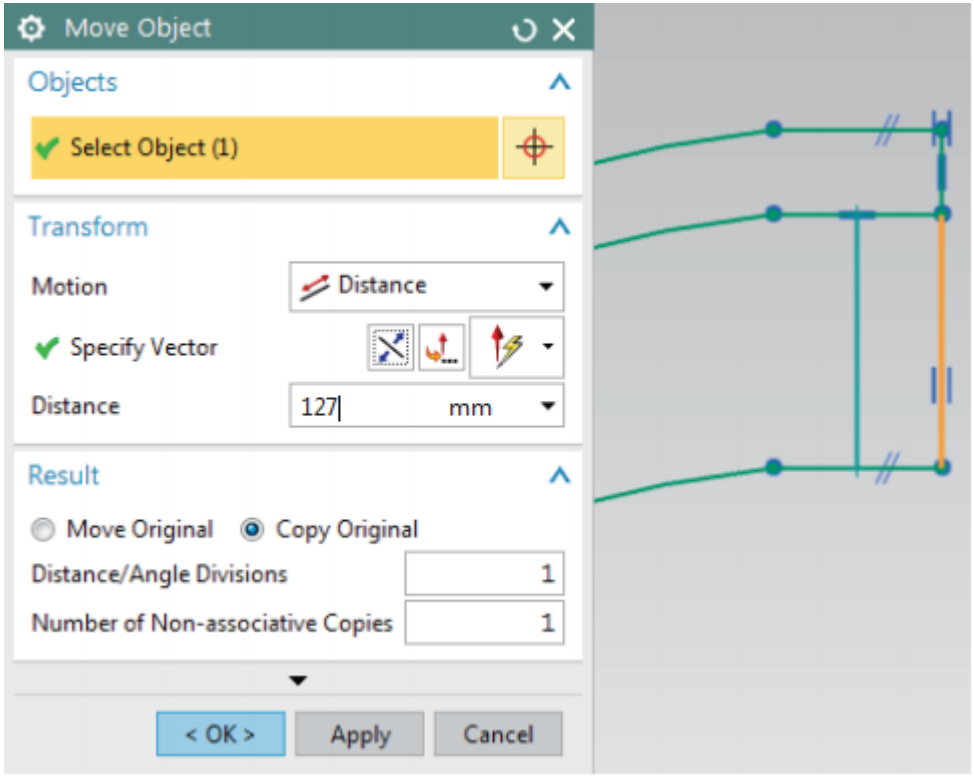
Aula 03

Now we will create the curve required for outside of the casing on the smaller side which will form the flange portion.

20. Choose **Edit** →**Move Object** or choose **Move Curve** from the ribbon bar
21. Select the outer line as shown in the figure below.
22. **Move** the lower curve in the **XC-direction** by - **12.7 mm**. This is the same as translating it in the negative **XC-direction** by **12.7 mm**.

Aula 03

23. Using **straight line**s join this curve with the inside curve of the casing It will form a closed chain curve as shown.
24. Click on the Finish Flag
25. Save and Close the file



Aula 03

We will use this sketching in the next Lab. To model the Impeller Lower Casing.