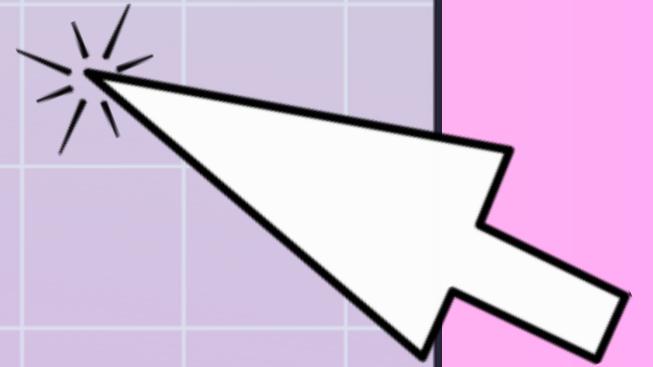
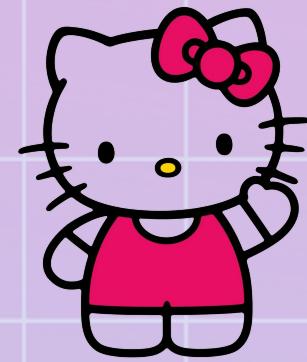


Guideline

# Fusion Modeling

## Hello Kitty

20190176 소프트웨어학과 유진선

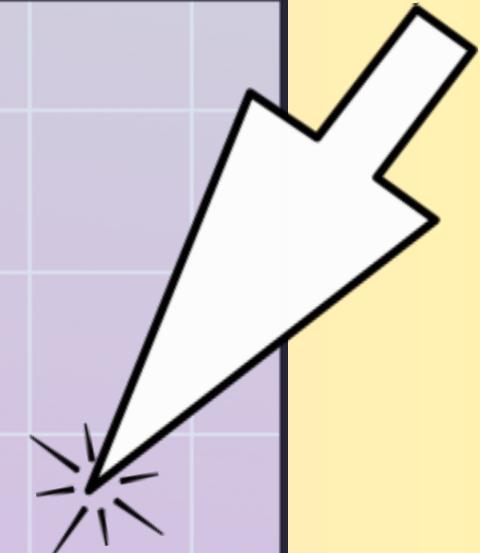
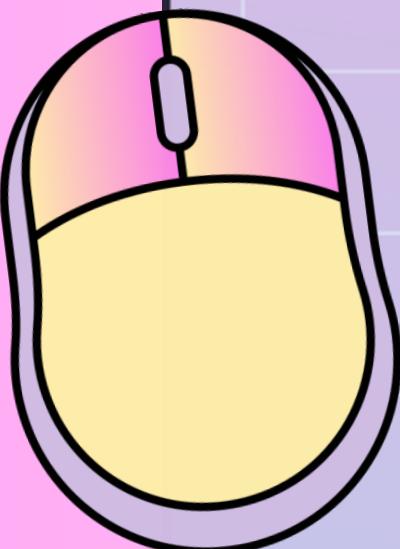


# Notice

출처: HIGHLAB3D YouTube Channel - [퓨전360으로 헬로키티 만들기](#)

Fusion은 영문 인터페이스를 기반으로, 또한 macOS 환경에서의 사용자 인터페이스를 기준으로 가이드라인을 제작하였습니다.

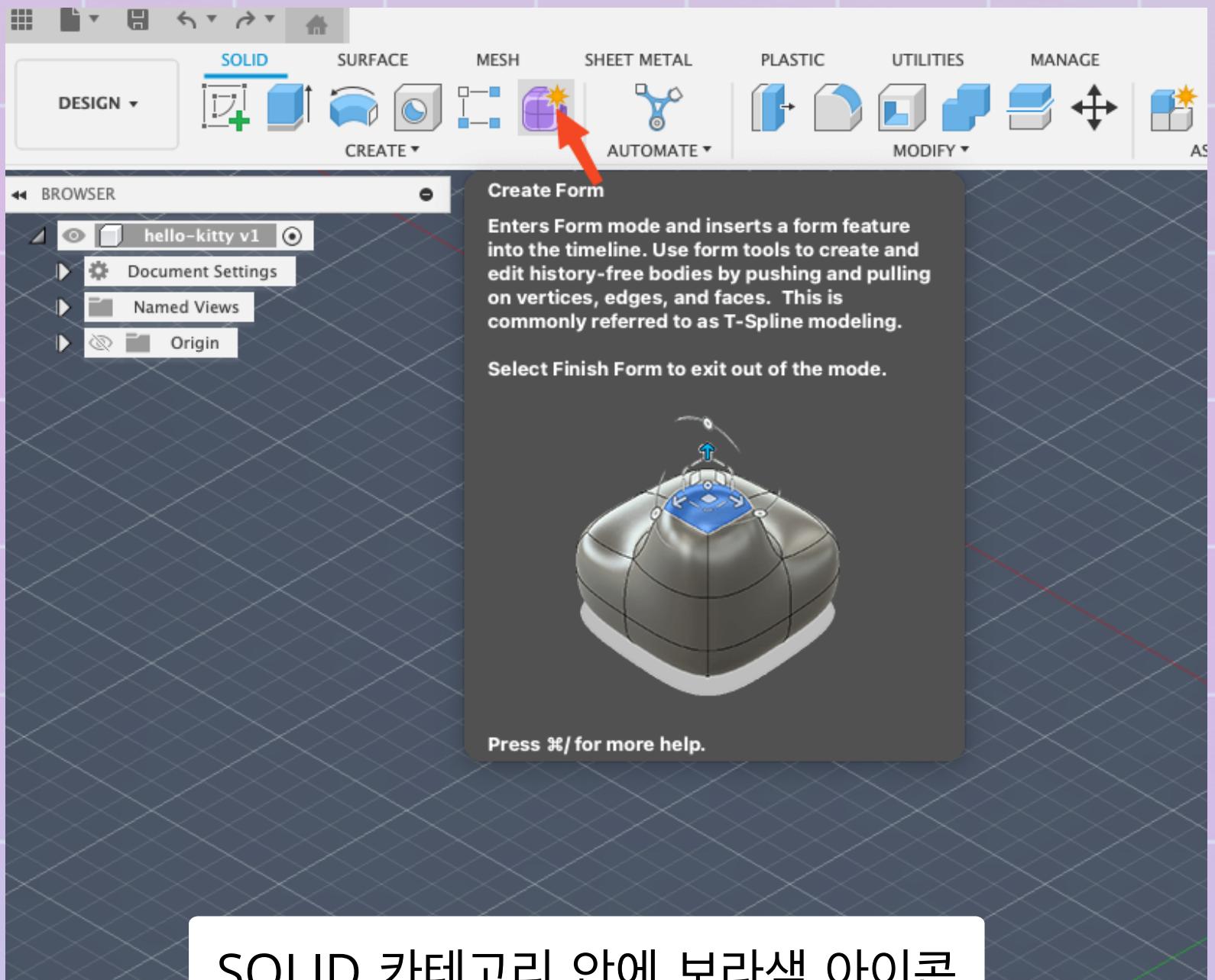
헬로키티 이미지 출처: <https://images.app.goo.gl/wGZ5UtvmZ5Zz5ZnLA>



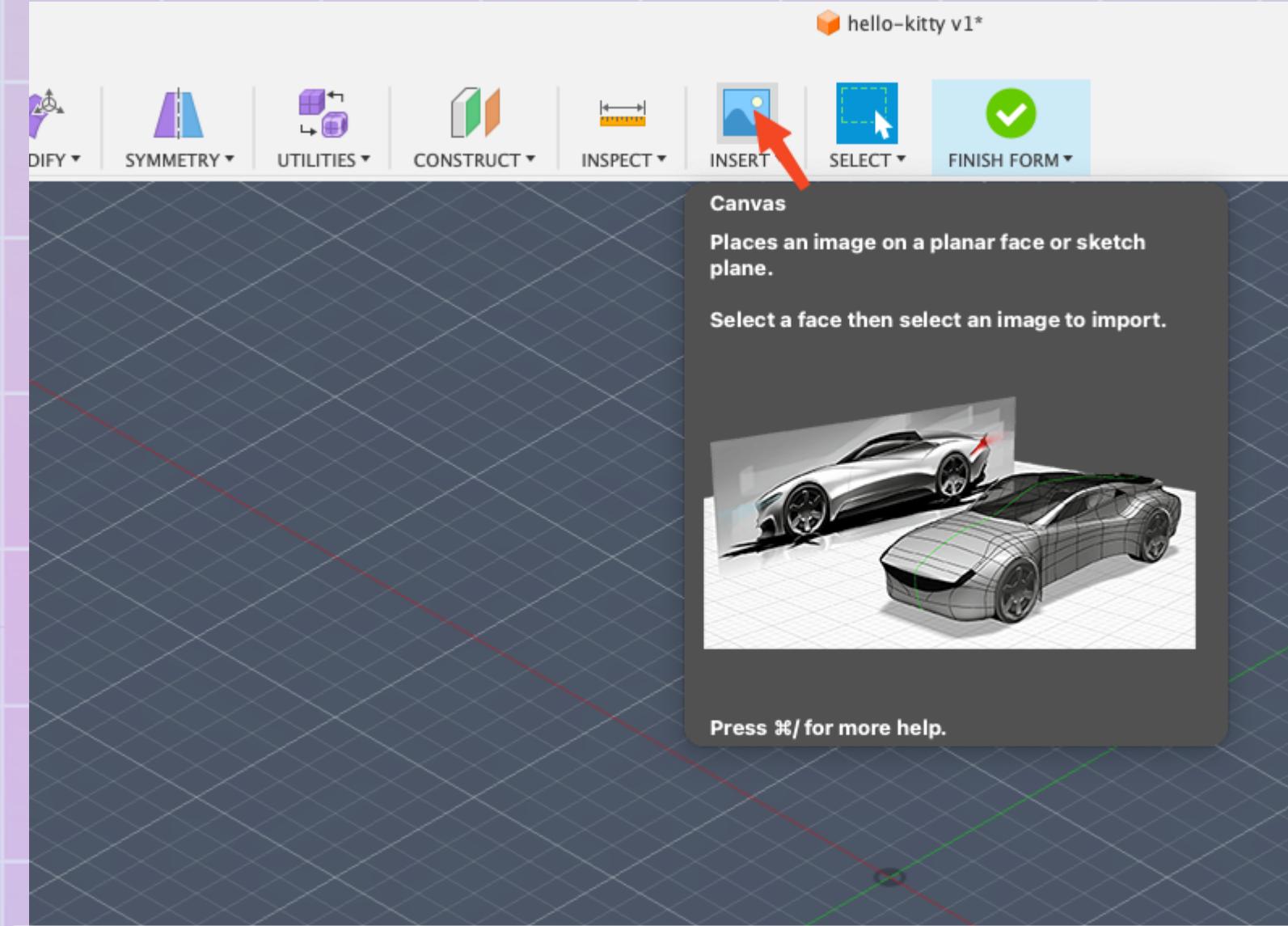
☰

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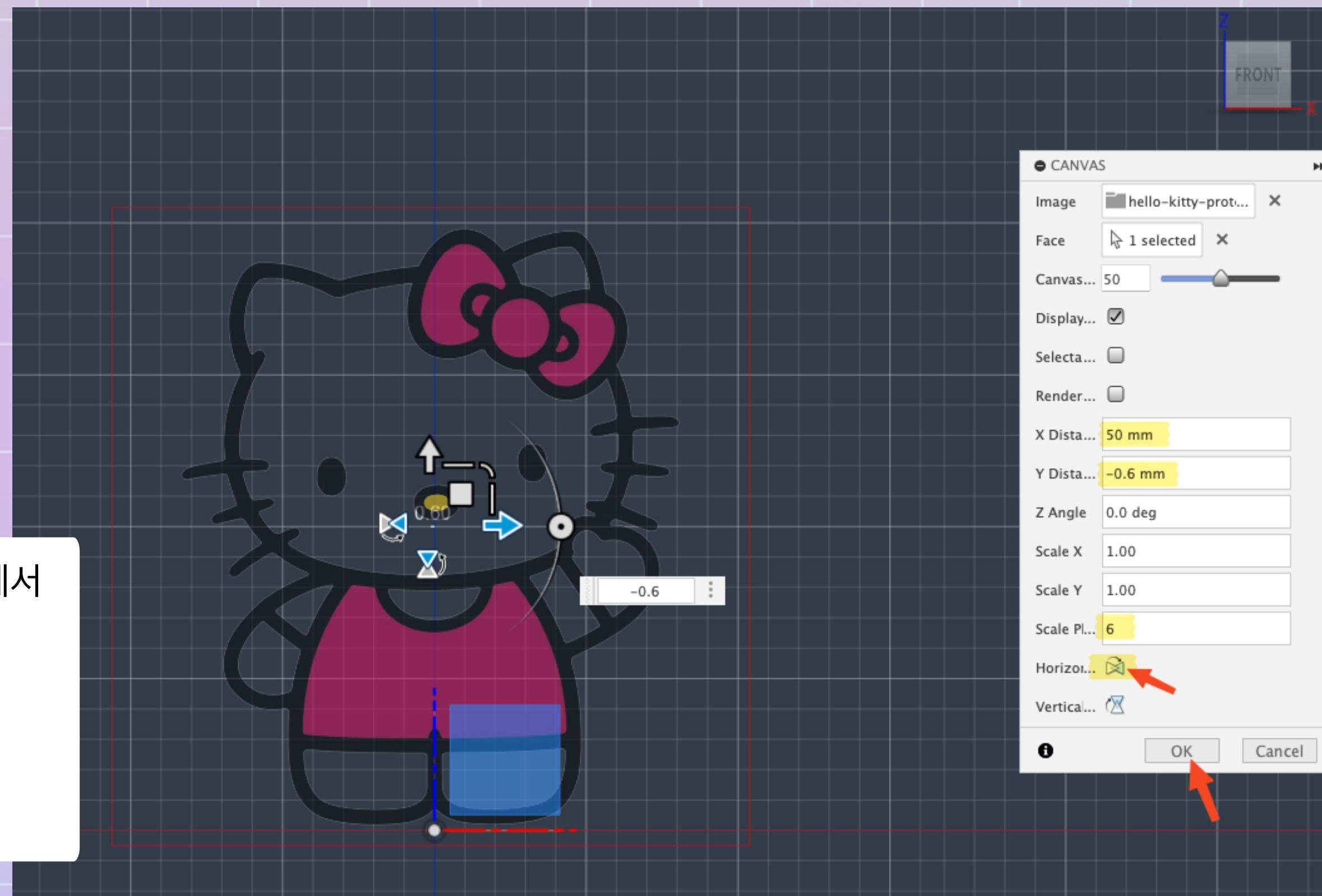
|



SOLID 카테고리 안에 보라색 아이콘 Create Form 을 클릭합니다.



이미지 모양 아이콘 INSERT를 클릭해 이미지를 불러옵니다.



이미지 삽입 후, Front 방향에서

Scale = 6

X Distance = 50

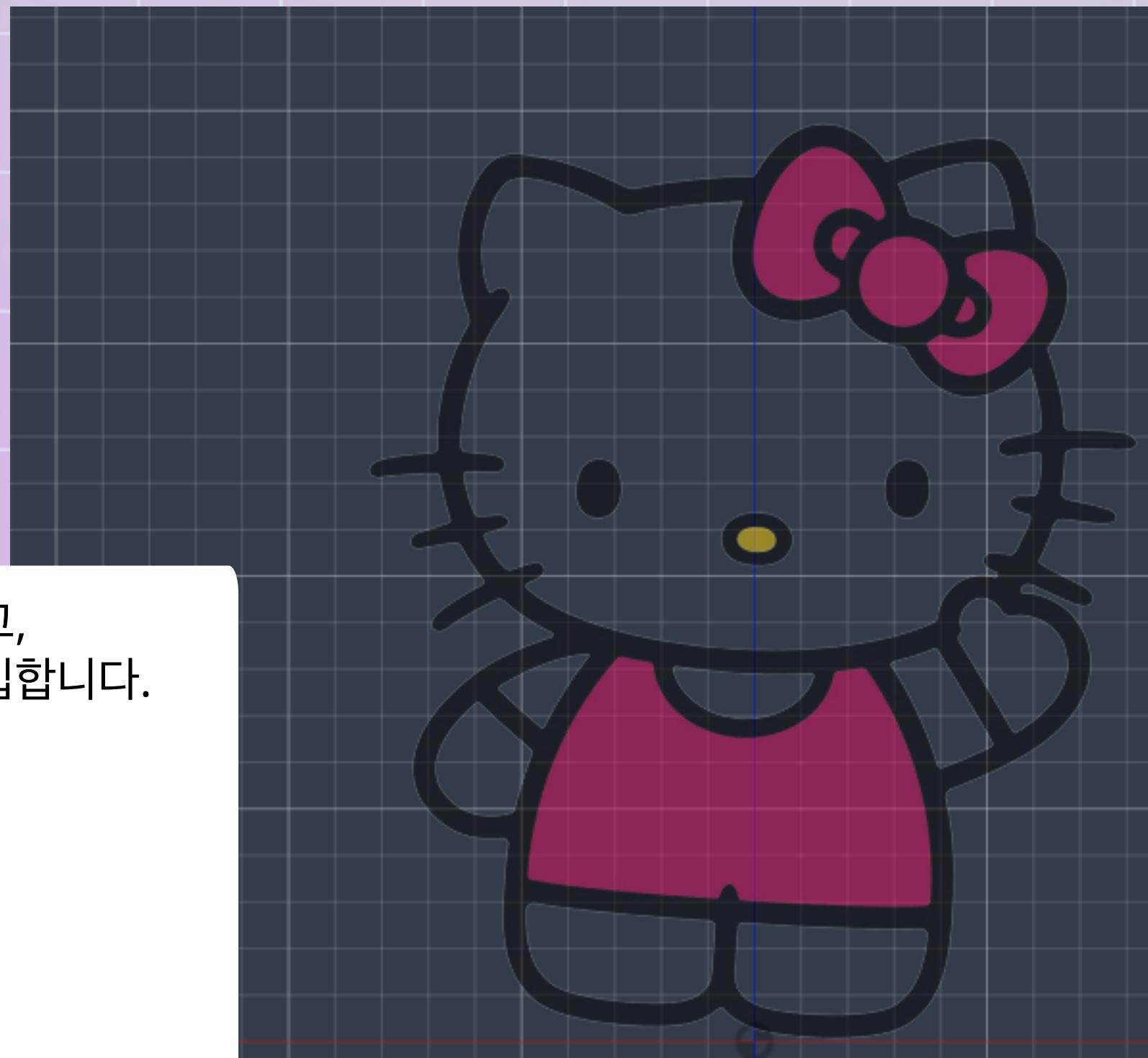
Y Distance = -0.6

Horizontal flip



◀ ▶

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• CANVAS

Image  X

Face  1 selected X

Canvas opacity

Display Through

Selectable

Renderable

X Distance

Y Distance

Z Angle

Scale X

Scale Y

Scale Plane XY

Horizontal Flip

Vertical Flip



OK

Cancel

첫 번째 이미지는 눈을 껌두고,  
같은 키티 이미지를 다시 삽입합니다.

Scale = 6

X Distance = 50

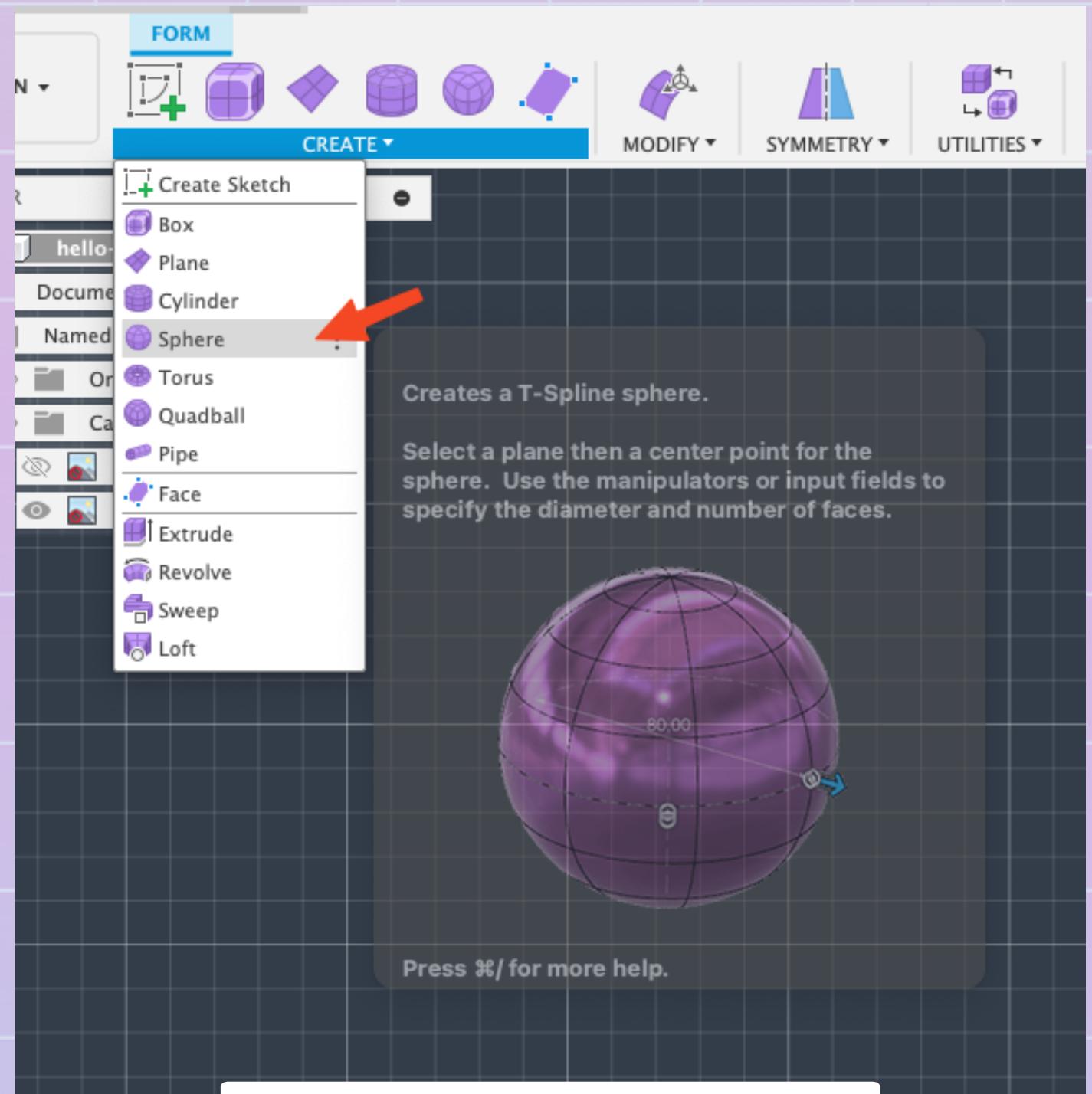
Y Distance = -1

Z Angle = 4

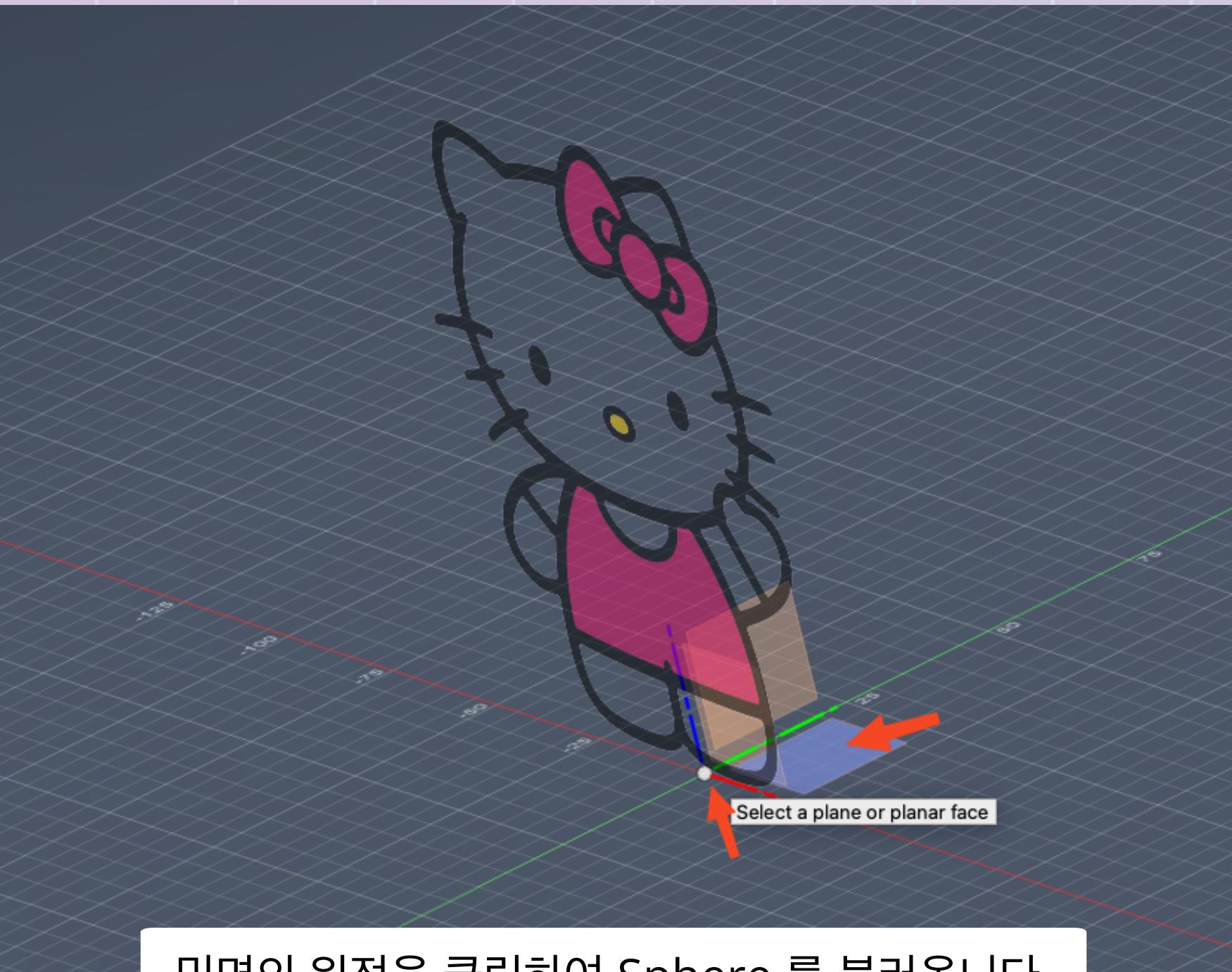
Horizontal flip

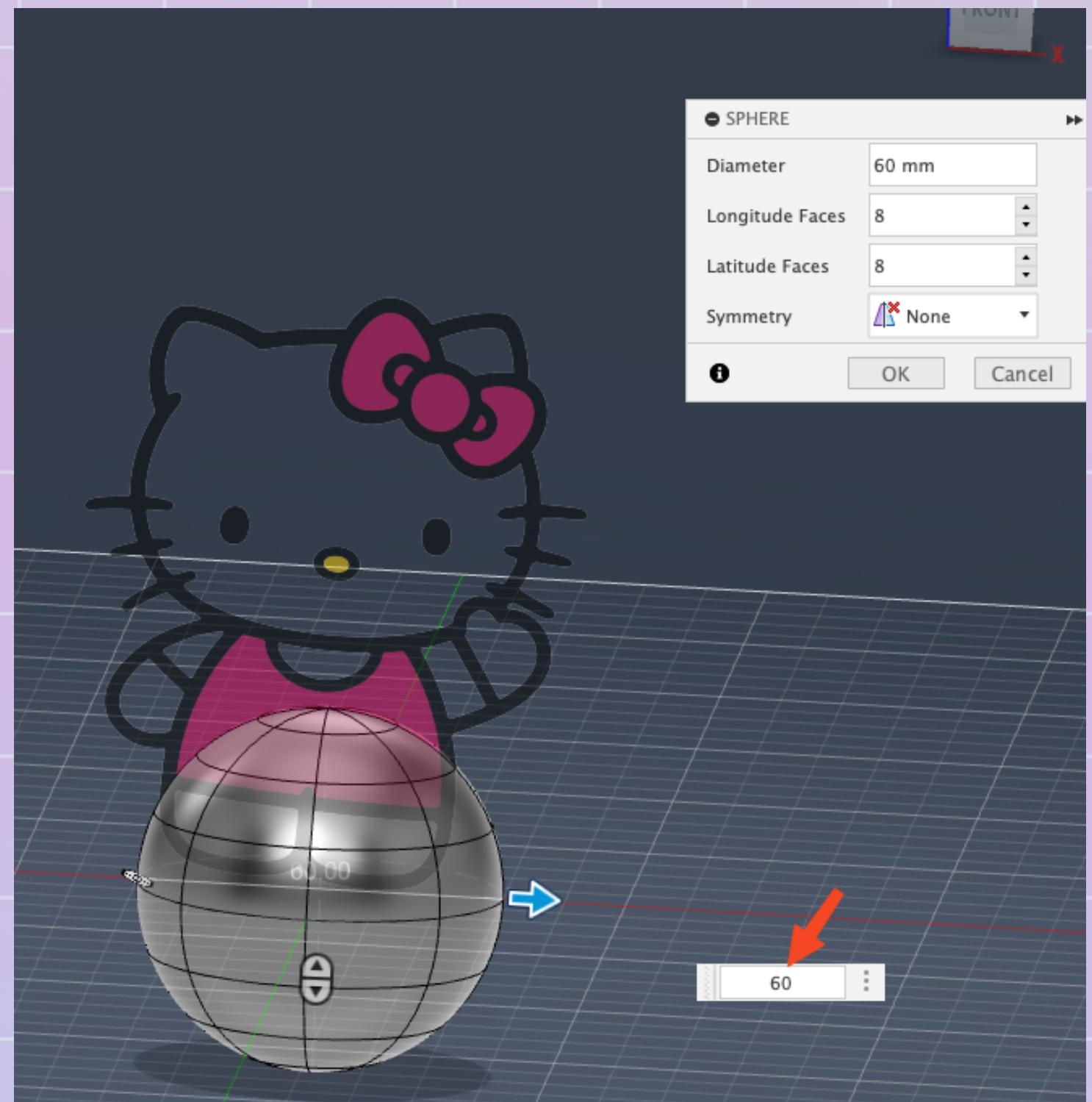
이번에는 조금 다른 치수를 입력합니다.



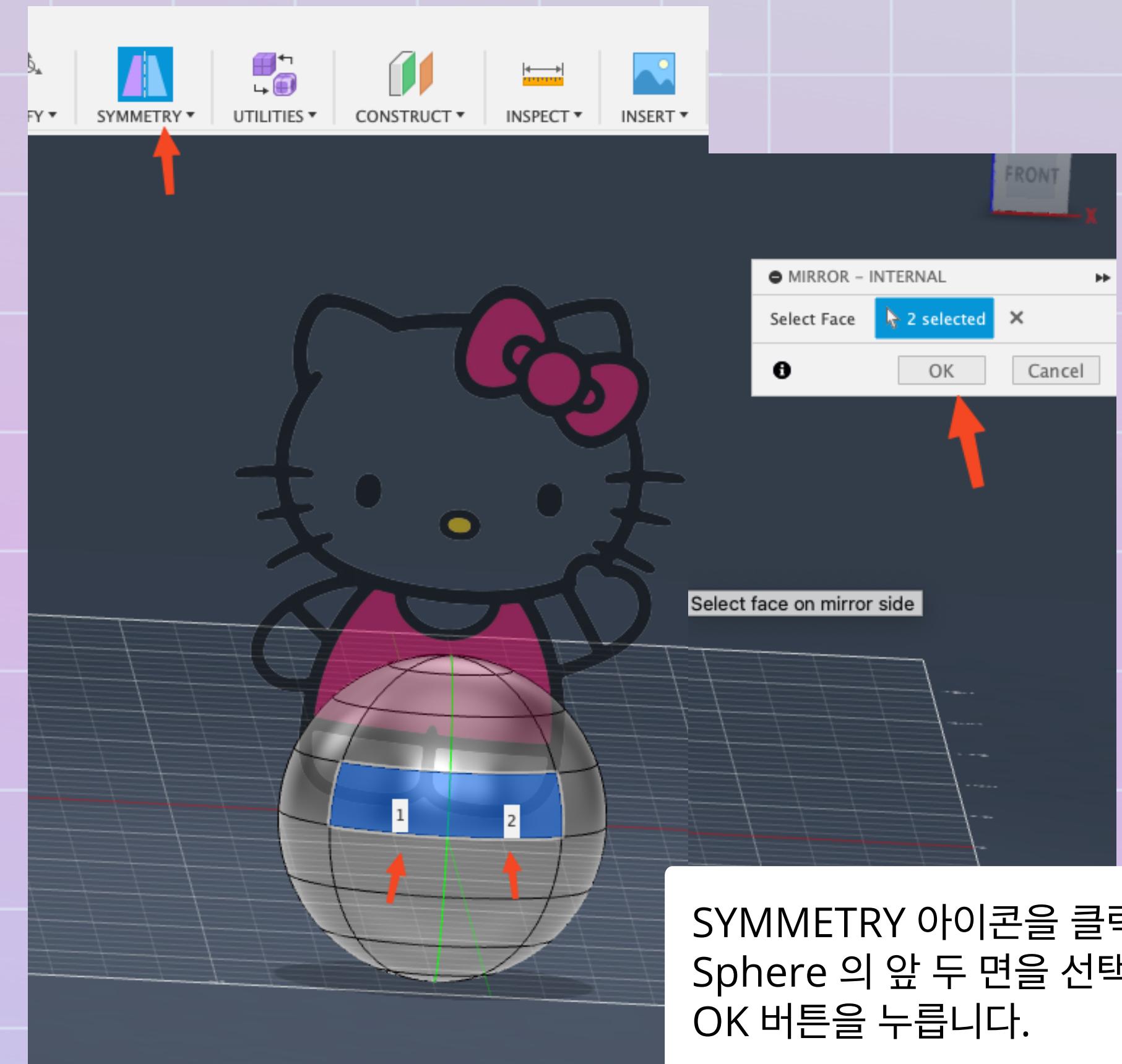


FORM - CREATE - Sphere

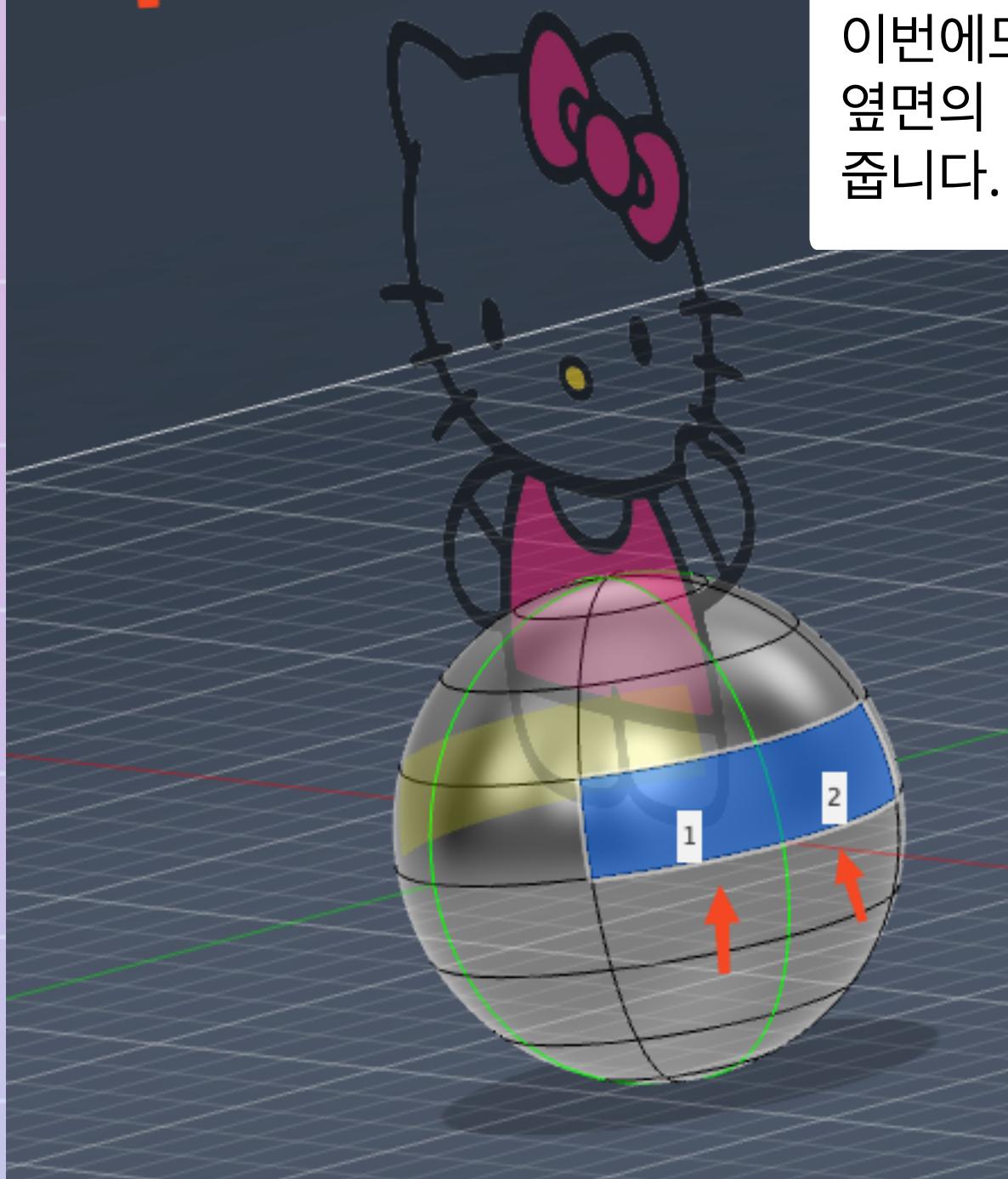
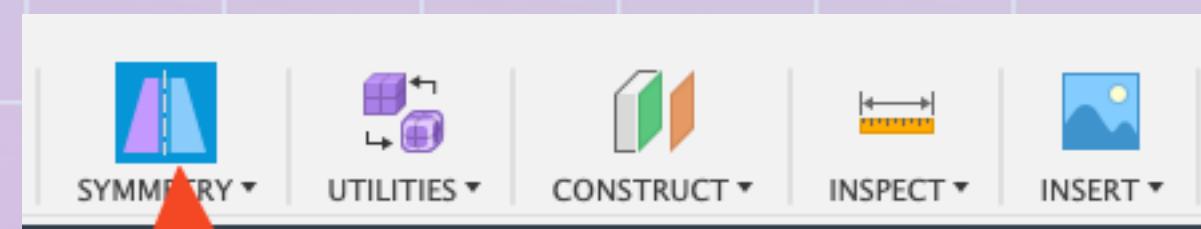
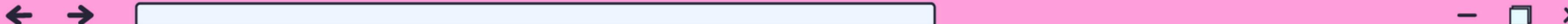




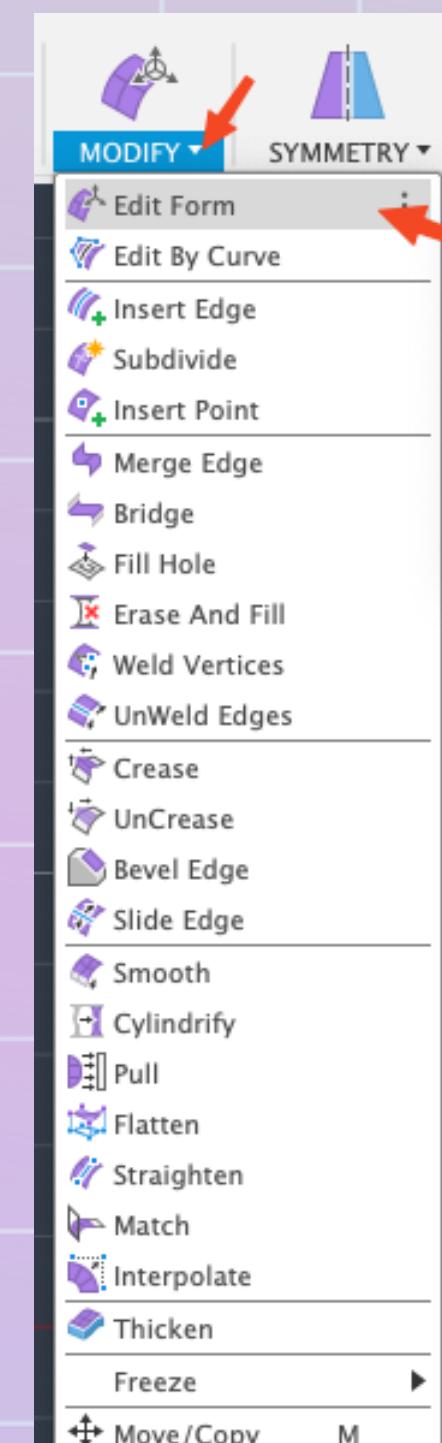
삽입된 Sphere 의 Diameter 를 60 으로 설정합니다.



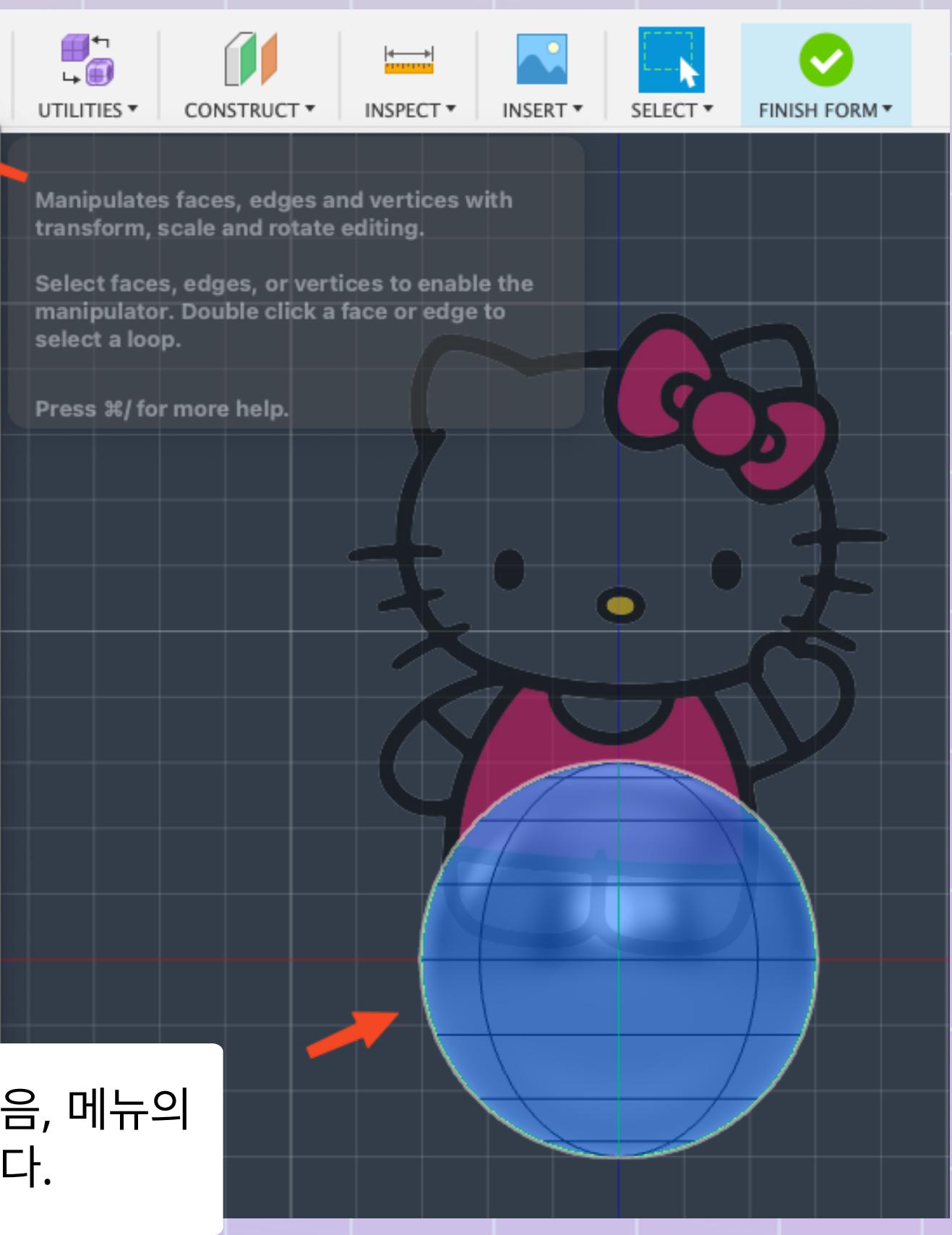
SYMMETRY 아이콘을 클릭한 다음,  
Sphere 의 앞 두 면을 선택하고,  
OK 버튼을 누릅니다.

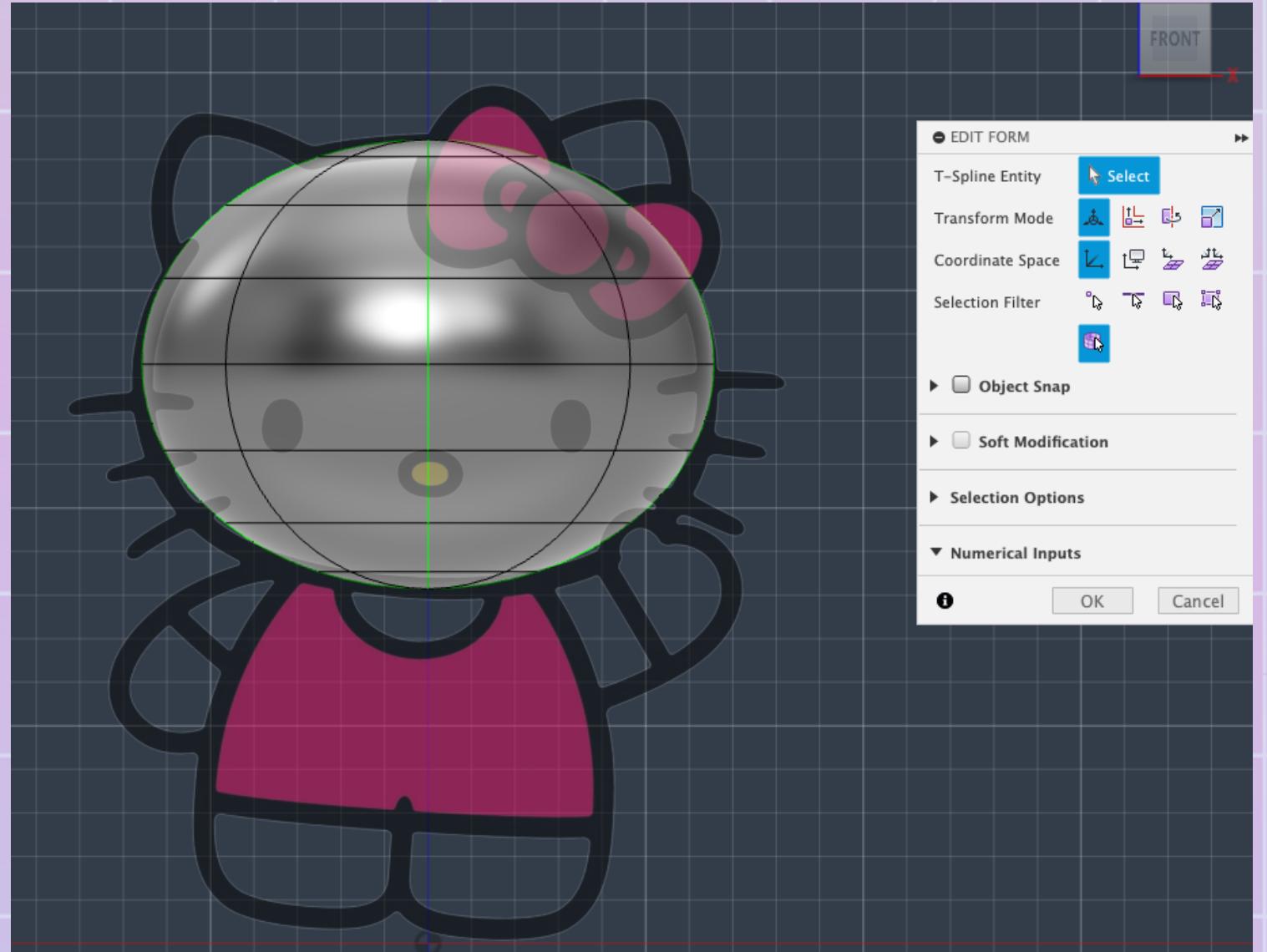


이번에도 같은 방법으로,  
옆면의 두 면을 대칭시켜  
줍니다.

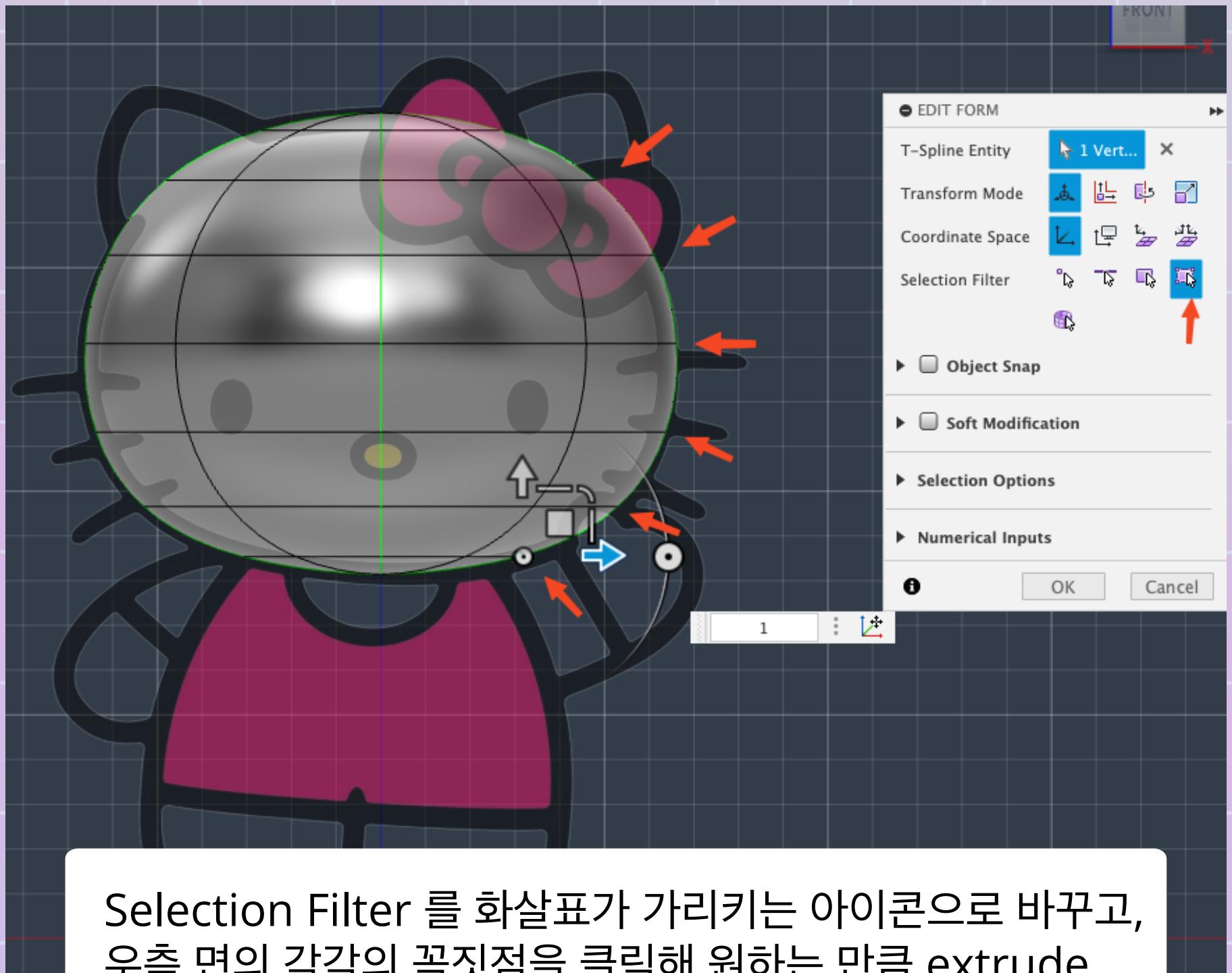


Sphere 를 더블클릭해 선택해준 다음, 메뉴의  
MODIFY - Edit Form 을 클릭합니다.



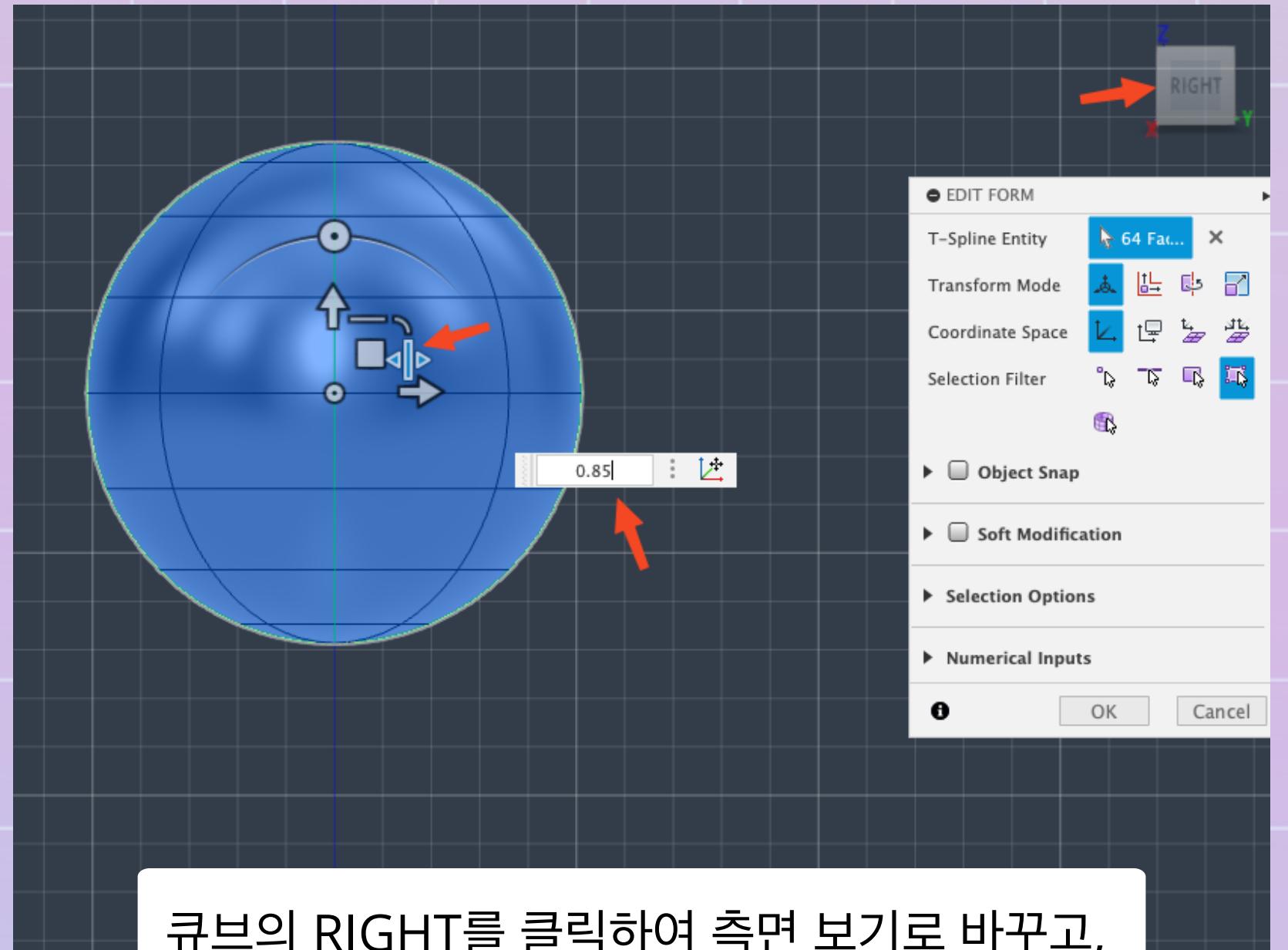


Sphere 의 위치를 이동시키고,  
적절하게 scale 을 조정해 얼굴과 유사한 모양으로 만듭니다.

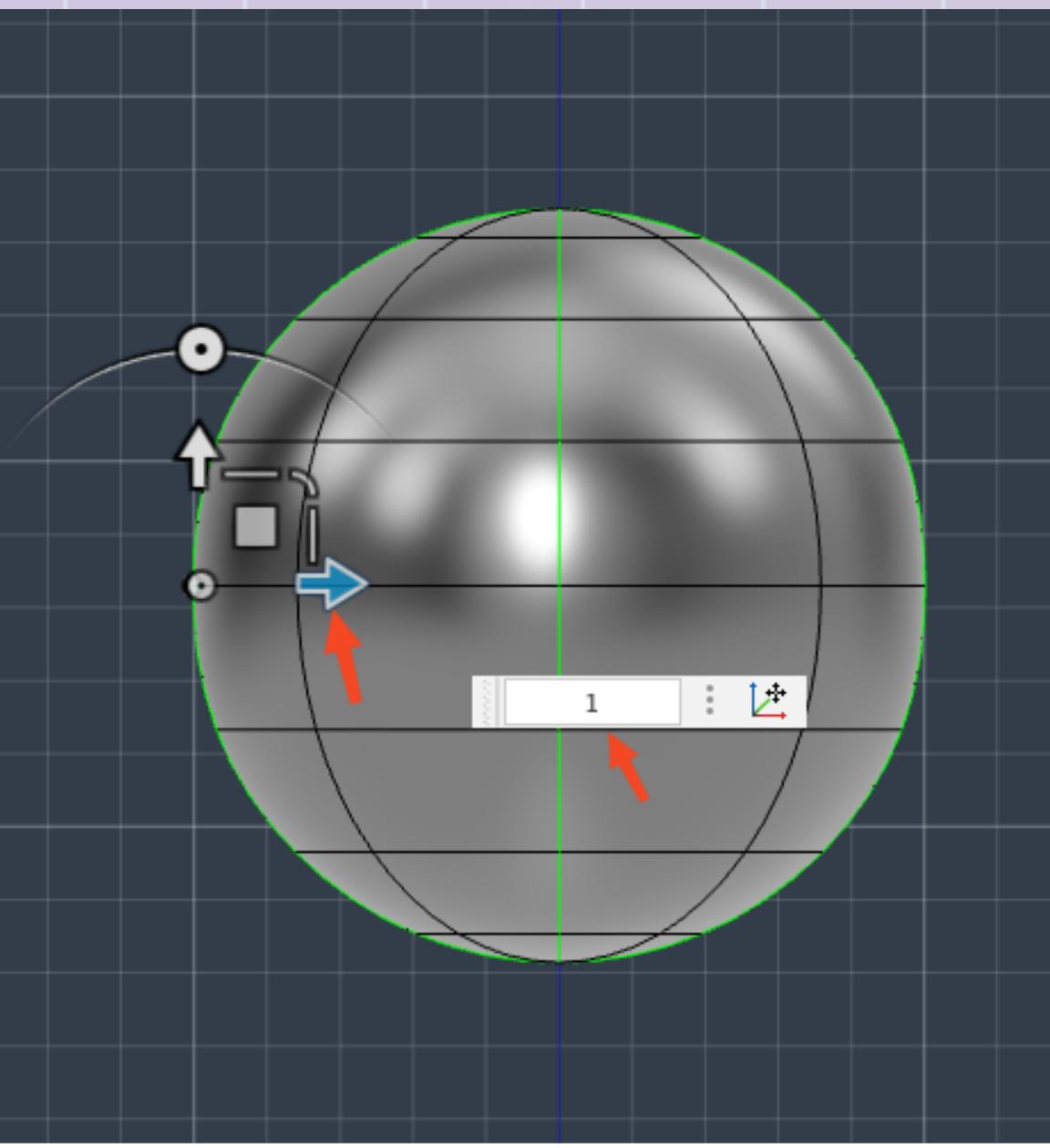


Selection Filter 를 화살표가 가리키는 아이콘으로 바꾸고,  
우측 면의 각각의 꼭짓점을 클릭해 원하는 만큼 extrude  
하여 (1 or 2 입력) 키로 얼굴에 맞게 모양을 변형합니다.



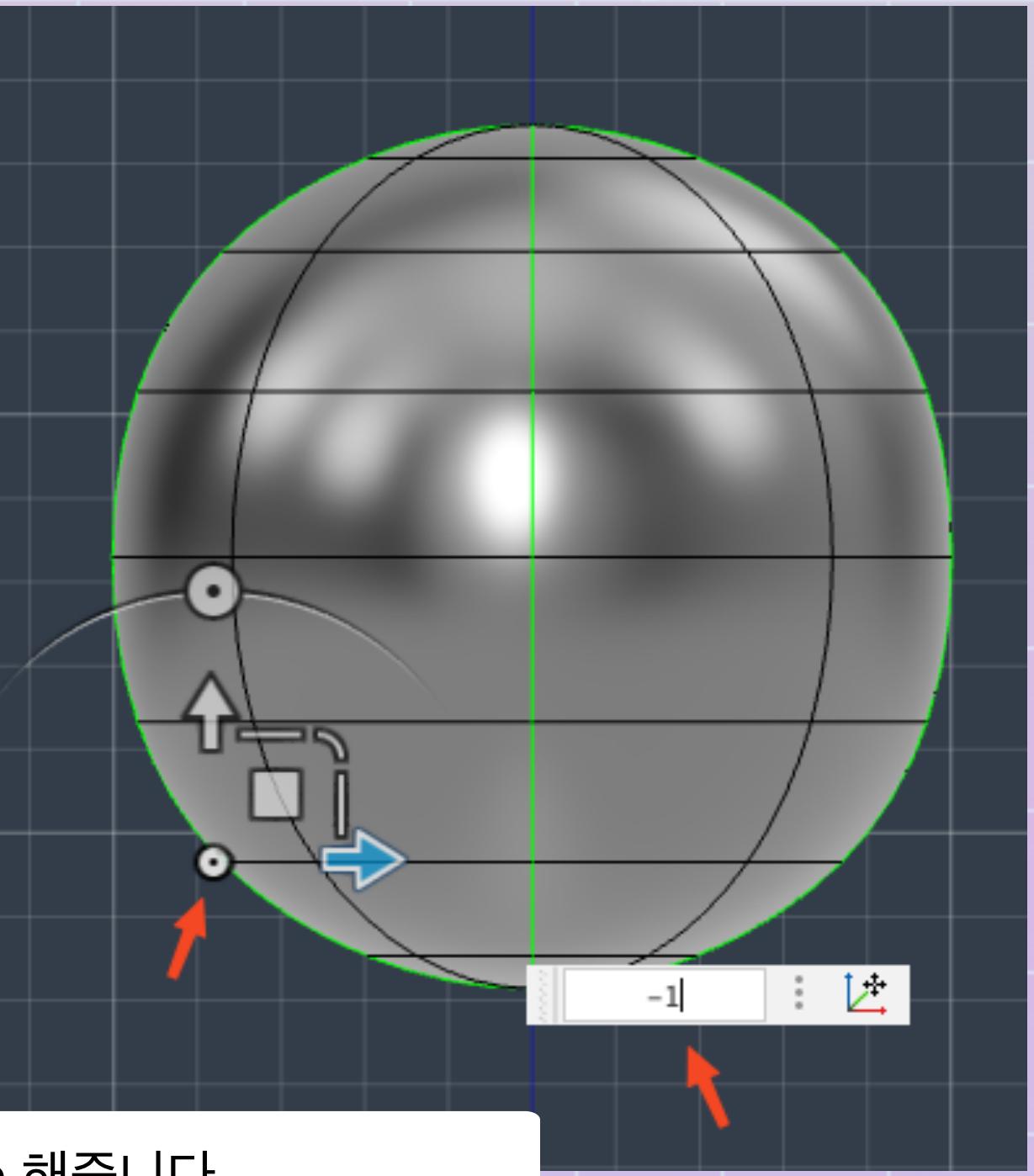
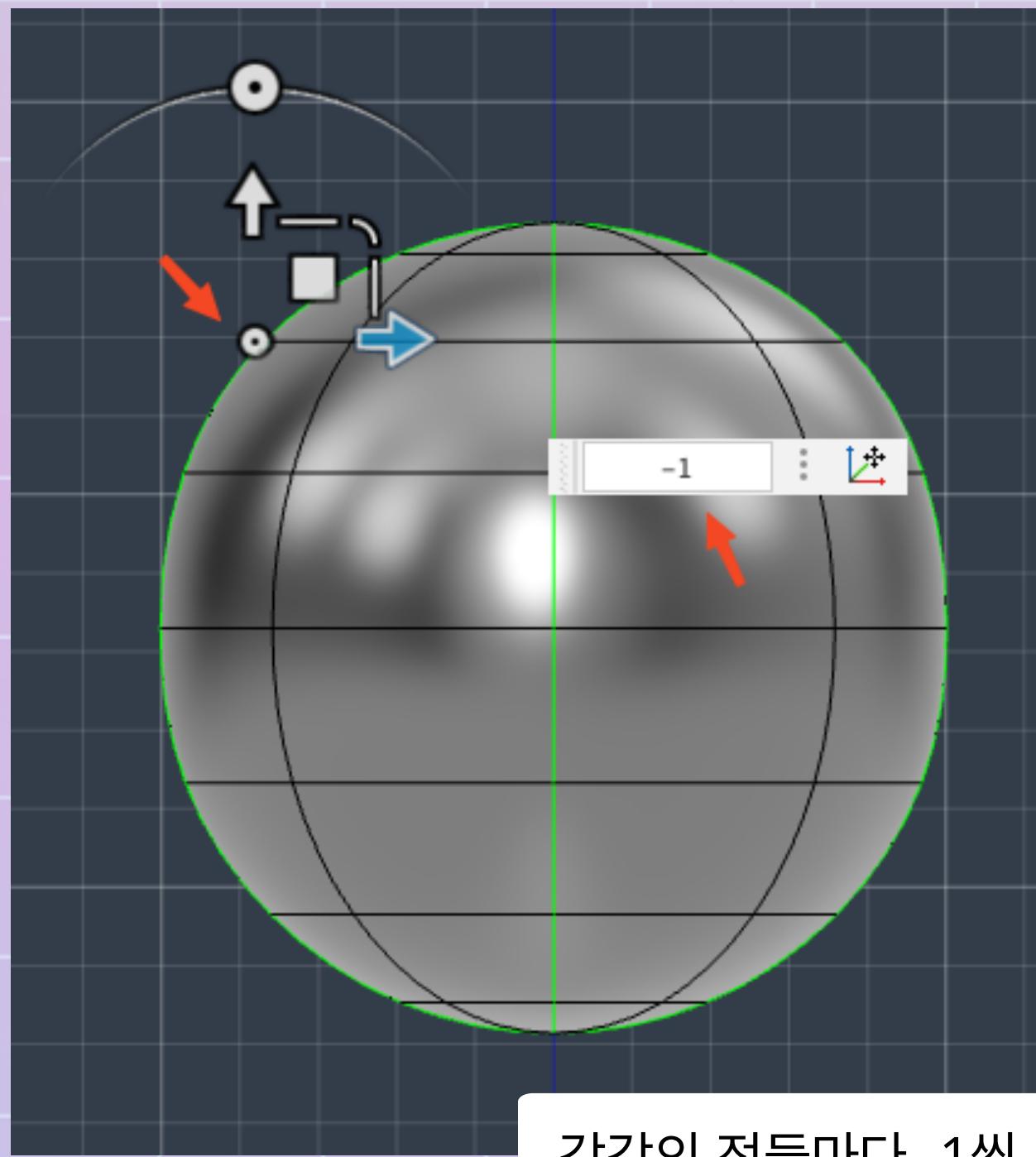


큐브의 RIGHT를 클릭하여 측면 보기로 바꾸고,  
가로 사이즈를 0.85로 입력해줍니다.

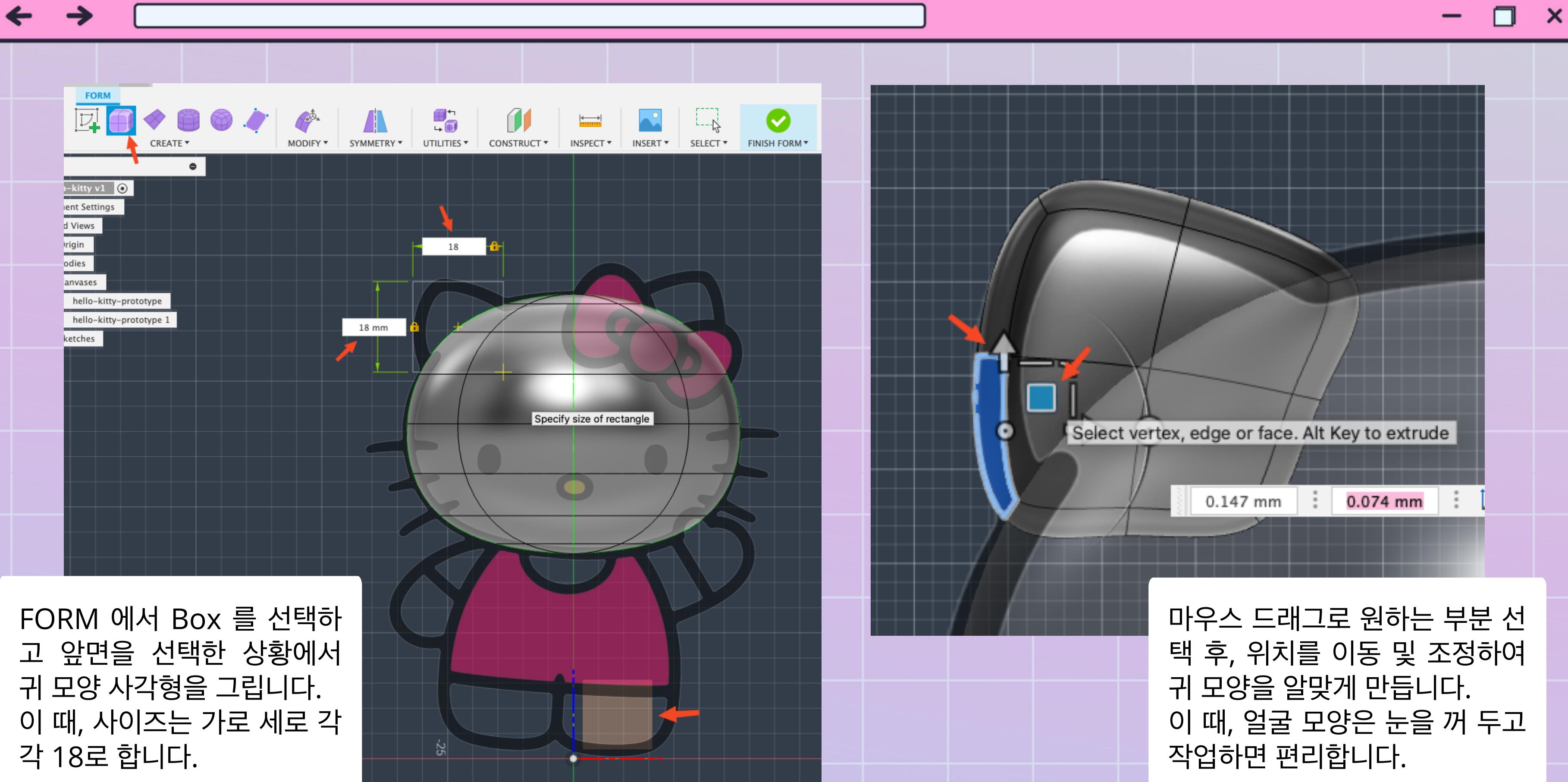


왼쪽 가운데 점을 클릭하여 오른쪽 화살표로  
1만큼 extrude 해줍니다.



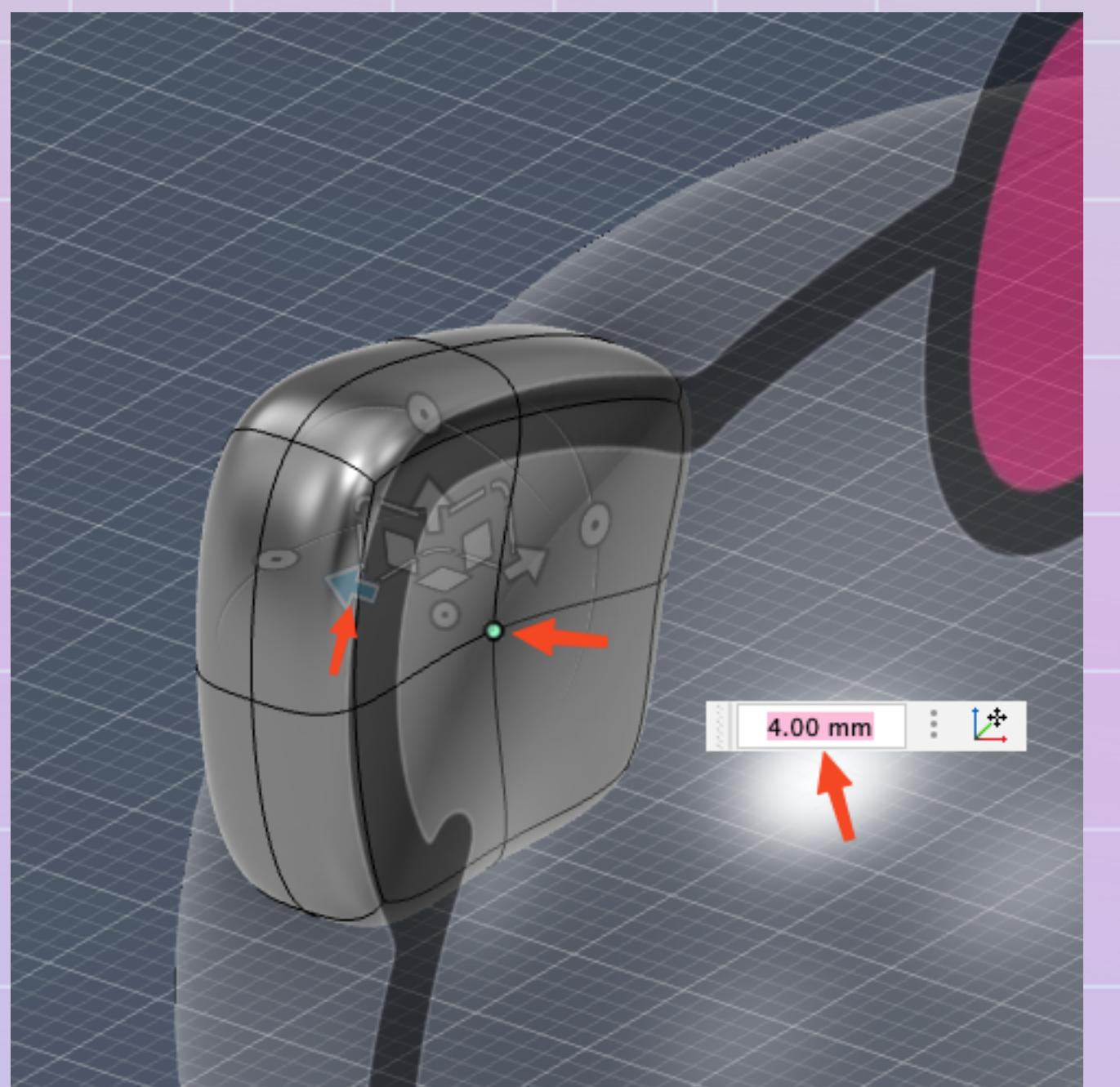


각각의 점들마다 -1씩 extrude 해줍니다.  
이렇게 완성된 머리는 “head”라고 이름을 바꿔 줍니다.

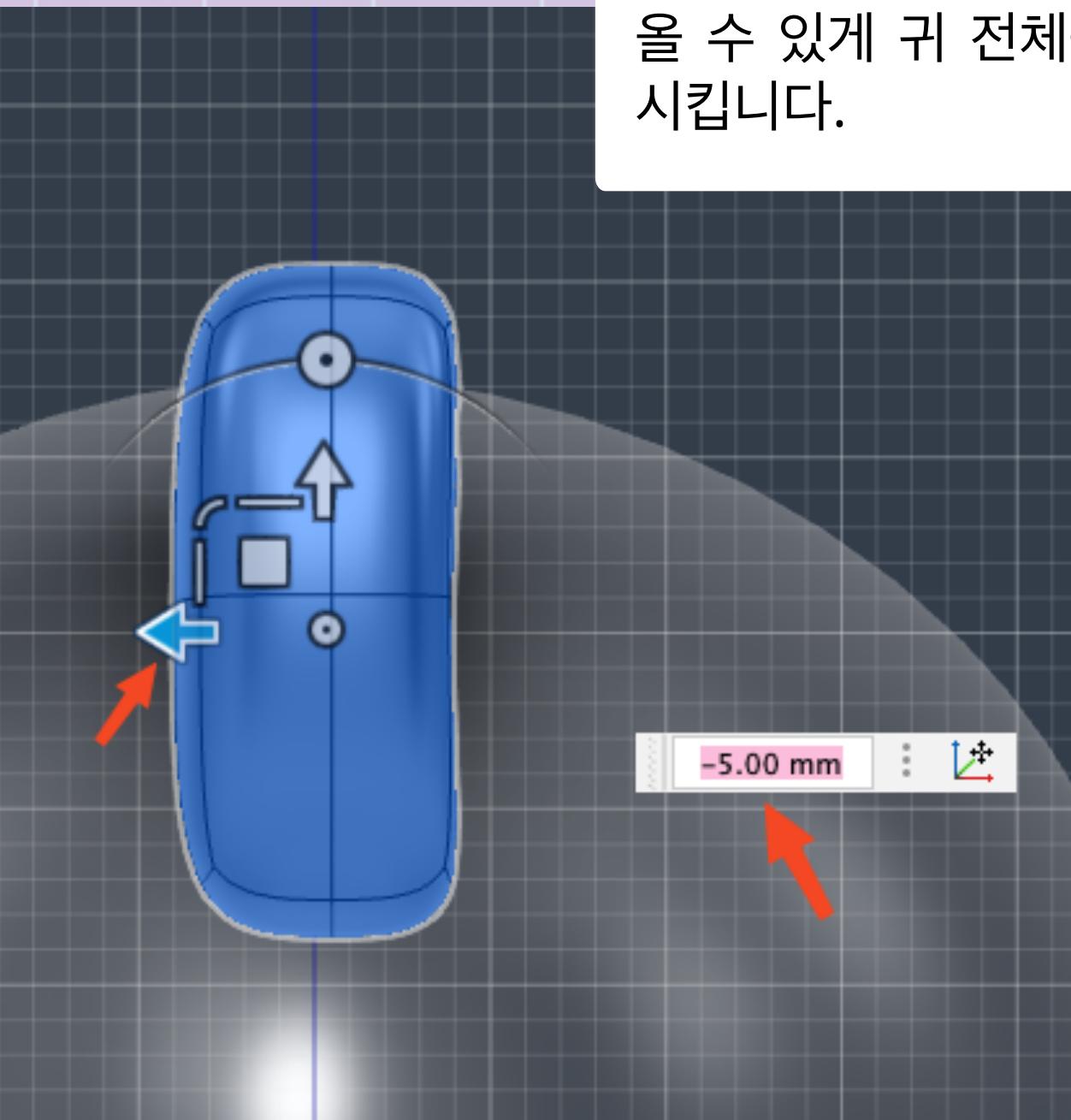


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귀 모양 완성 후, 옆으로 살짝 돌려 가운데 점을 클릭한 후 4 만큼 움직입니다. (파란색 화살표로 바깥으로 빼기)

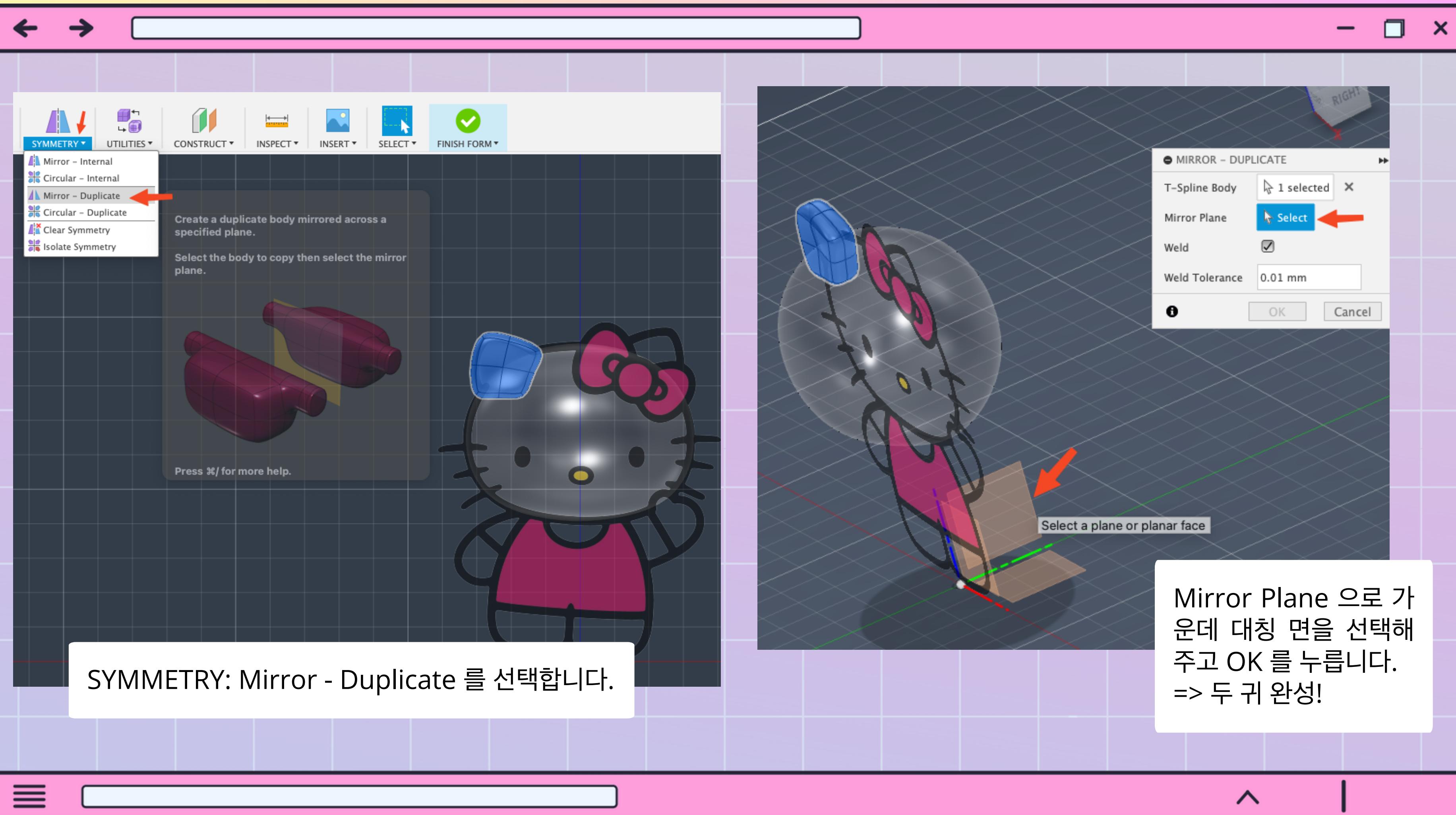


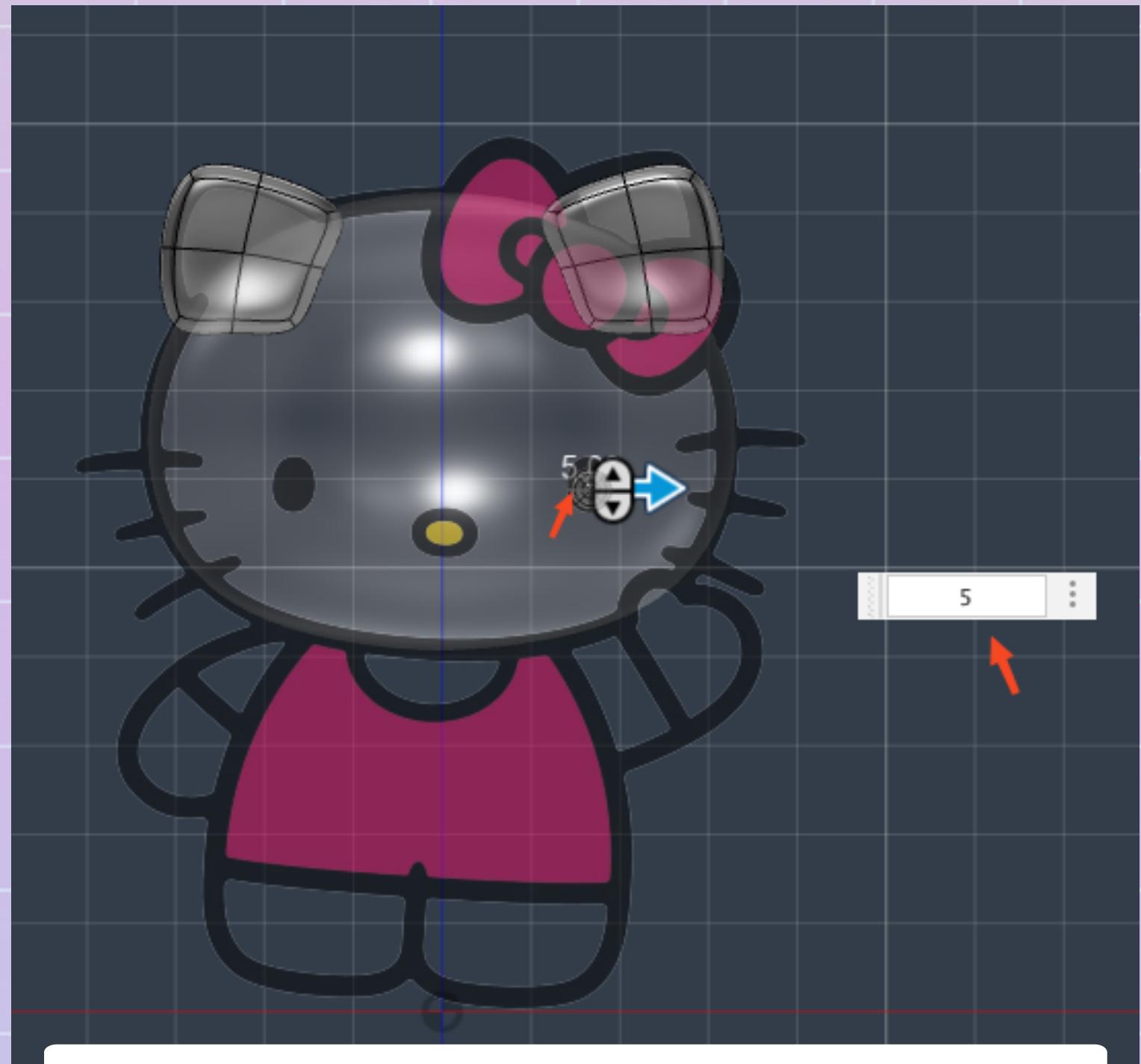
이후, 측면 상태에서 귀가 가운데에 올 수 있게 귀 전체를 -5만큼 이동 시킵니다.

☰

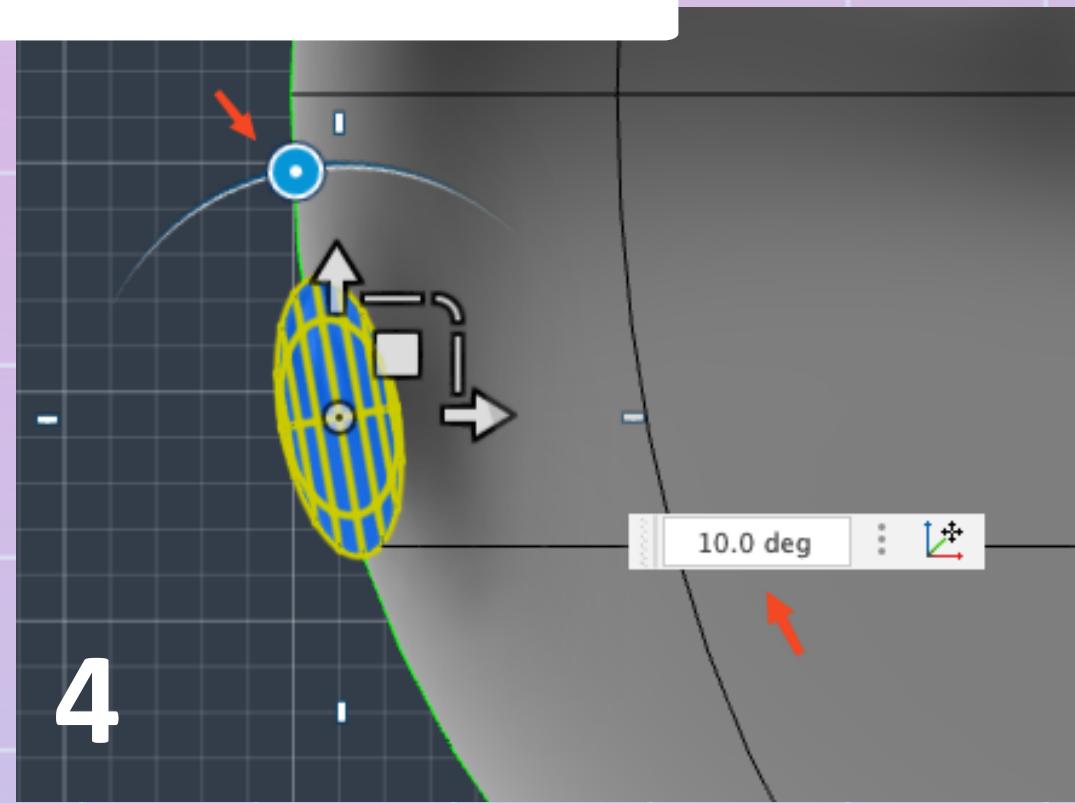
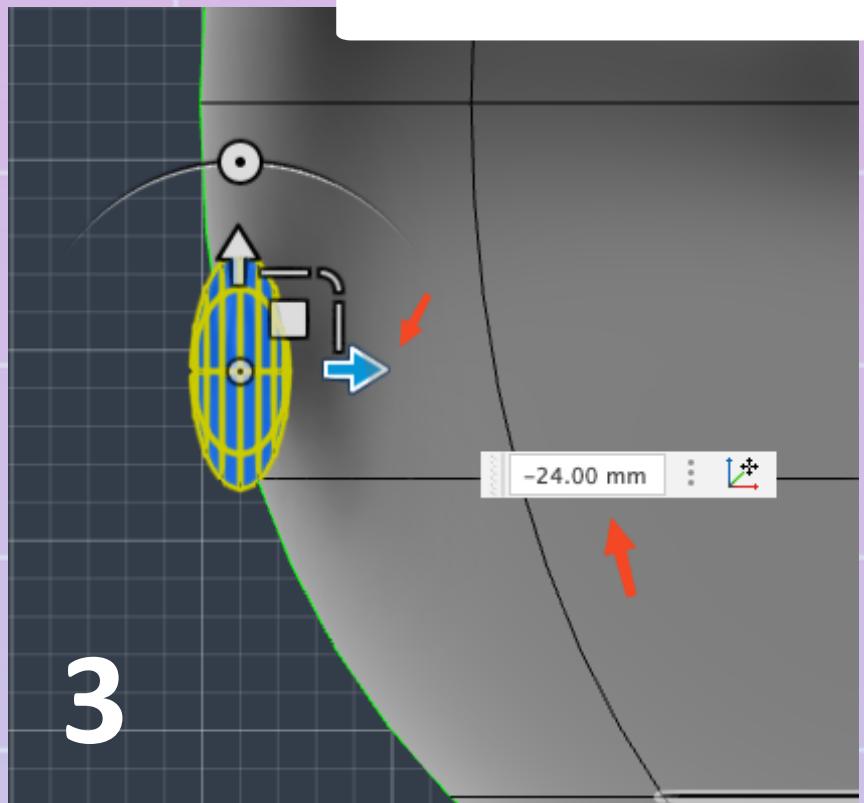
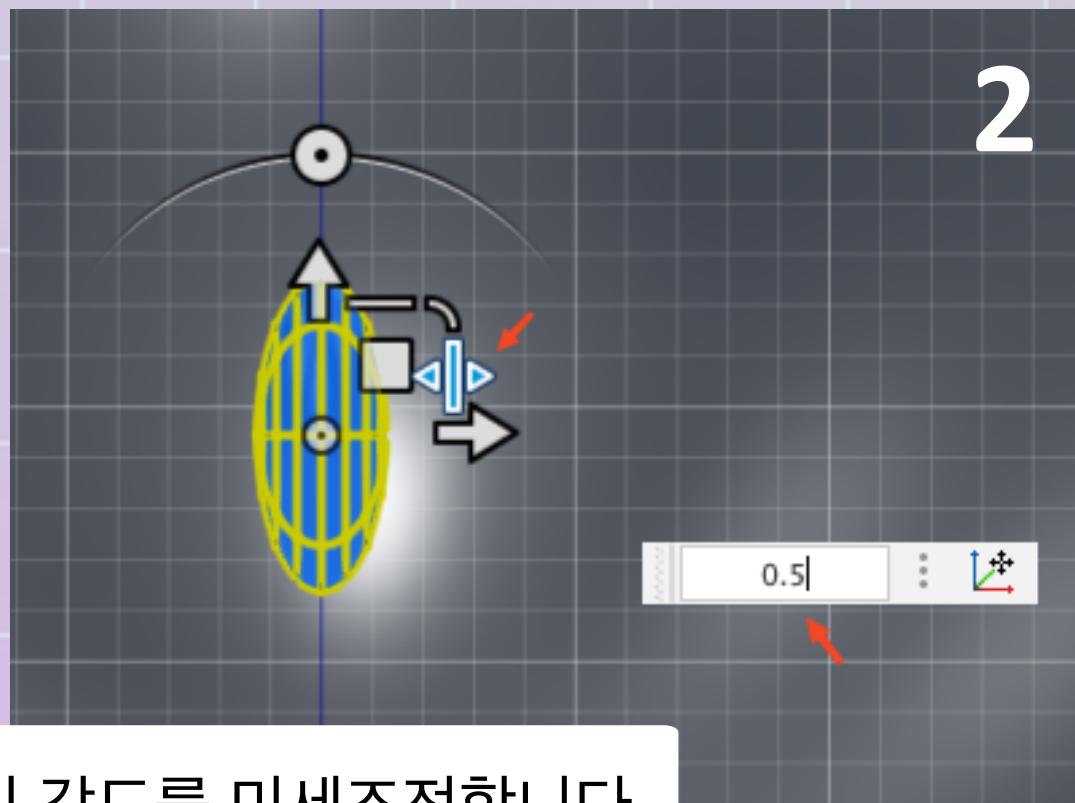
^

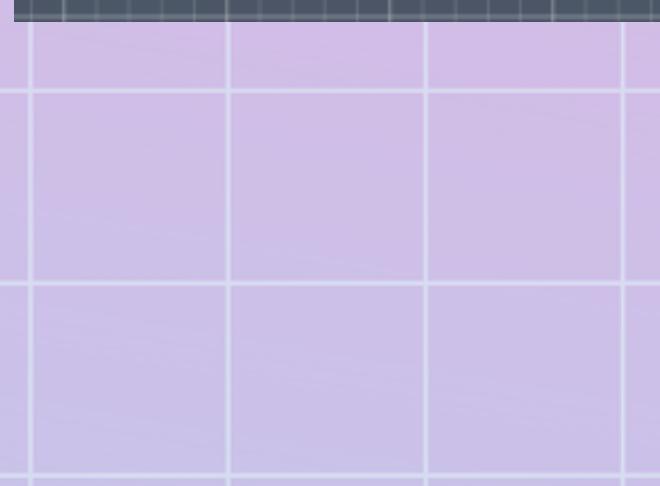
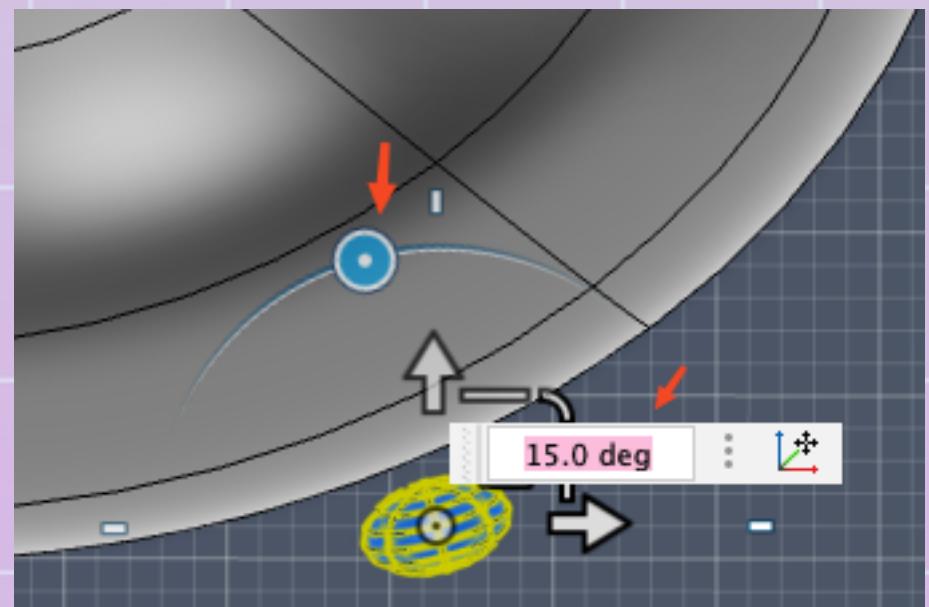
|



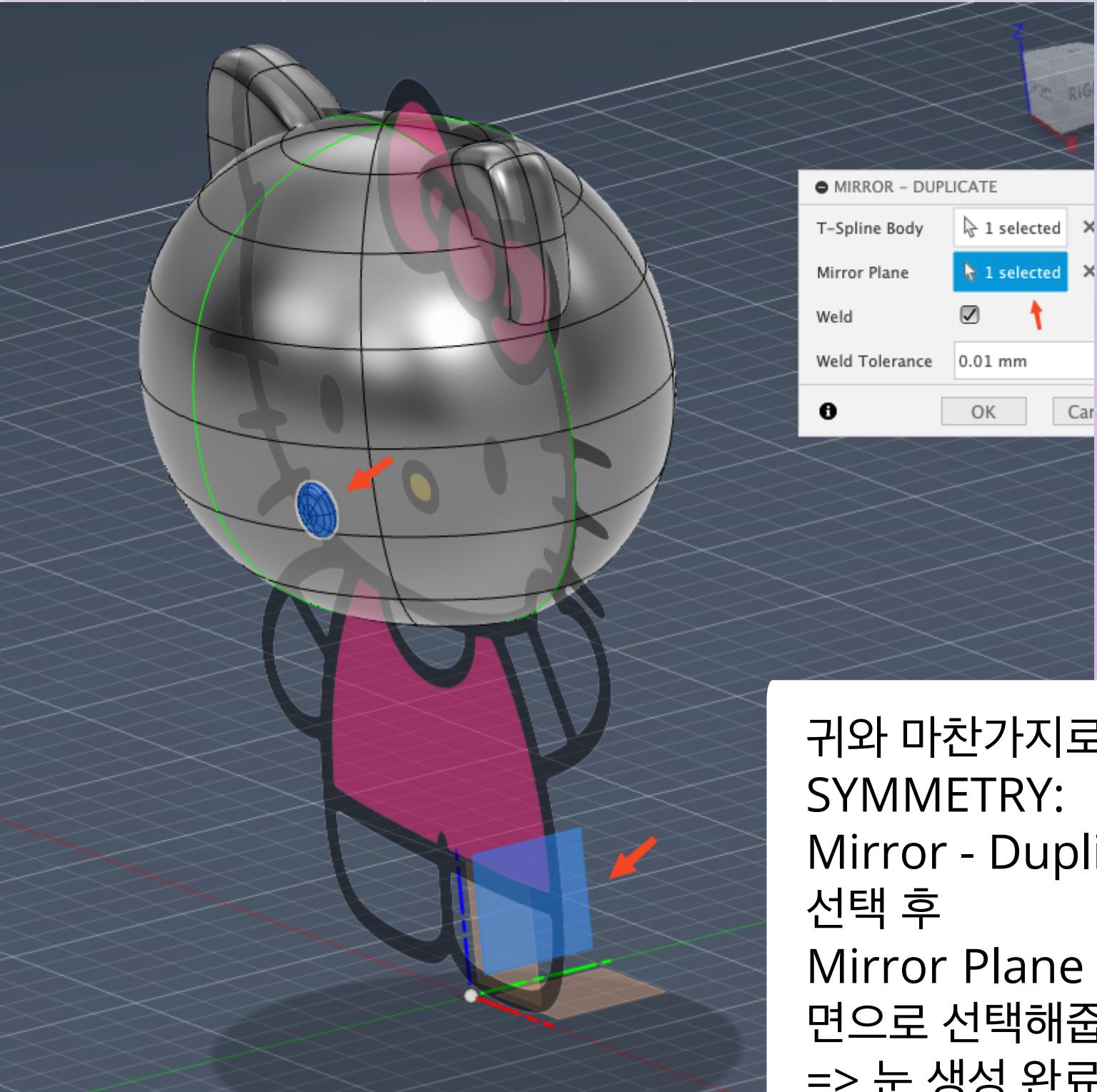
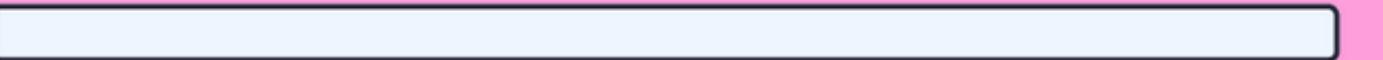


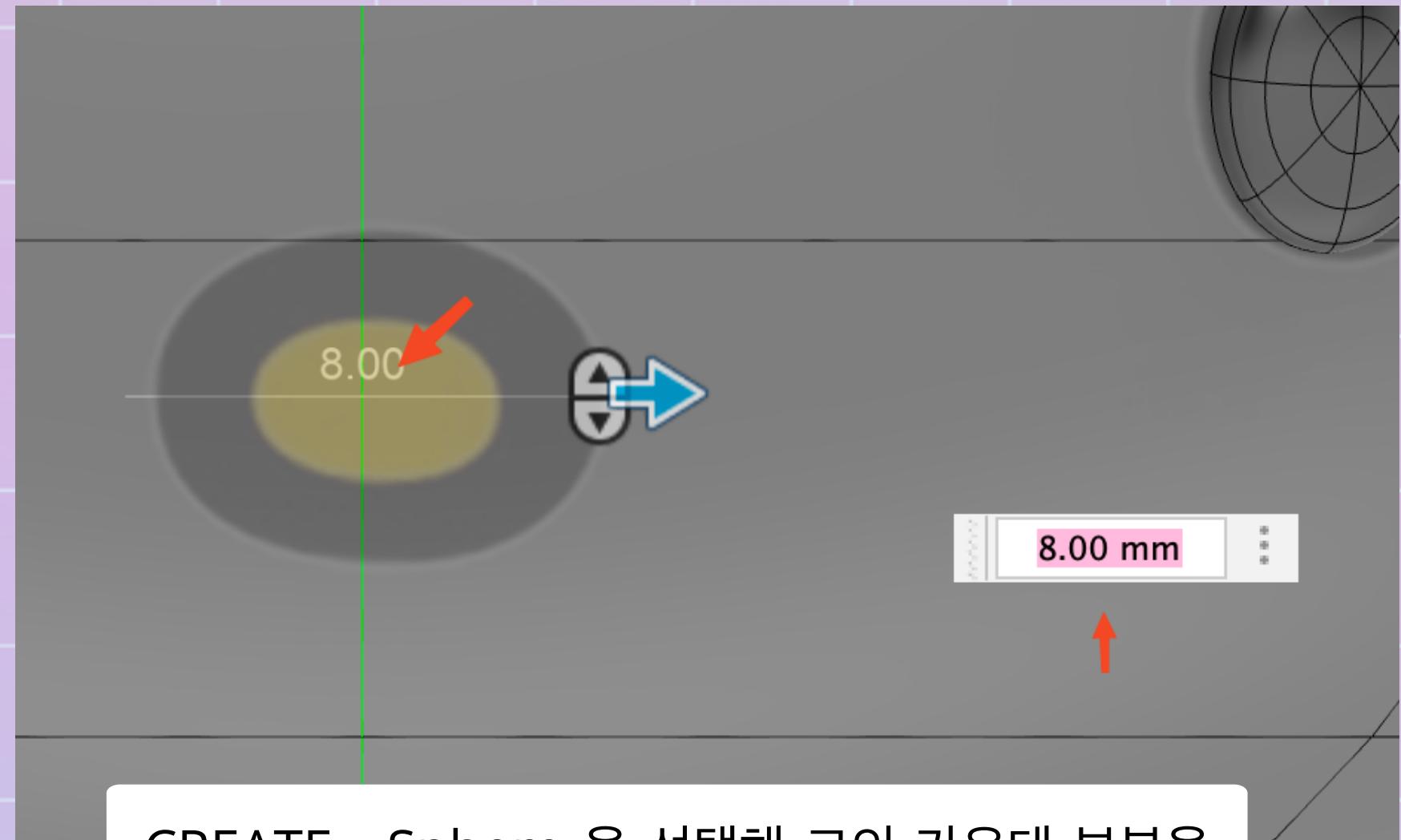
CREATE - Sphere 를 선택해 눈 부분에 찍습니다.  
사이즈는 5로 조정합니다.



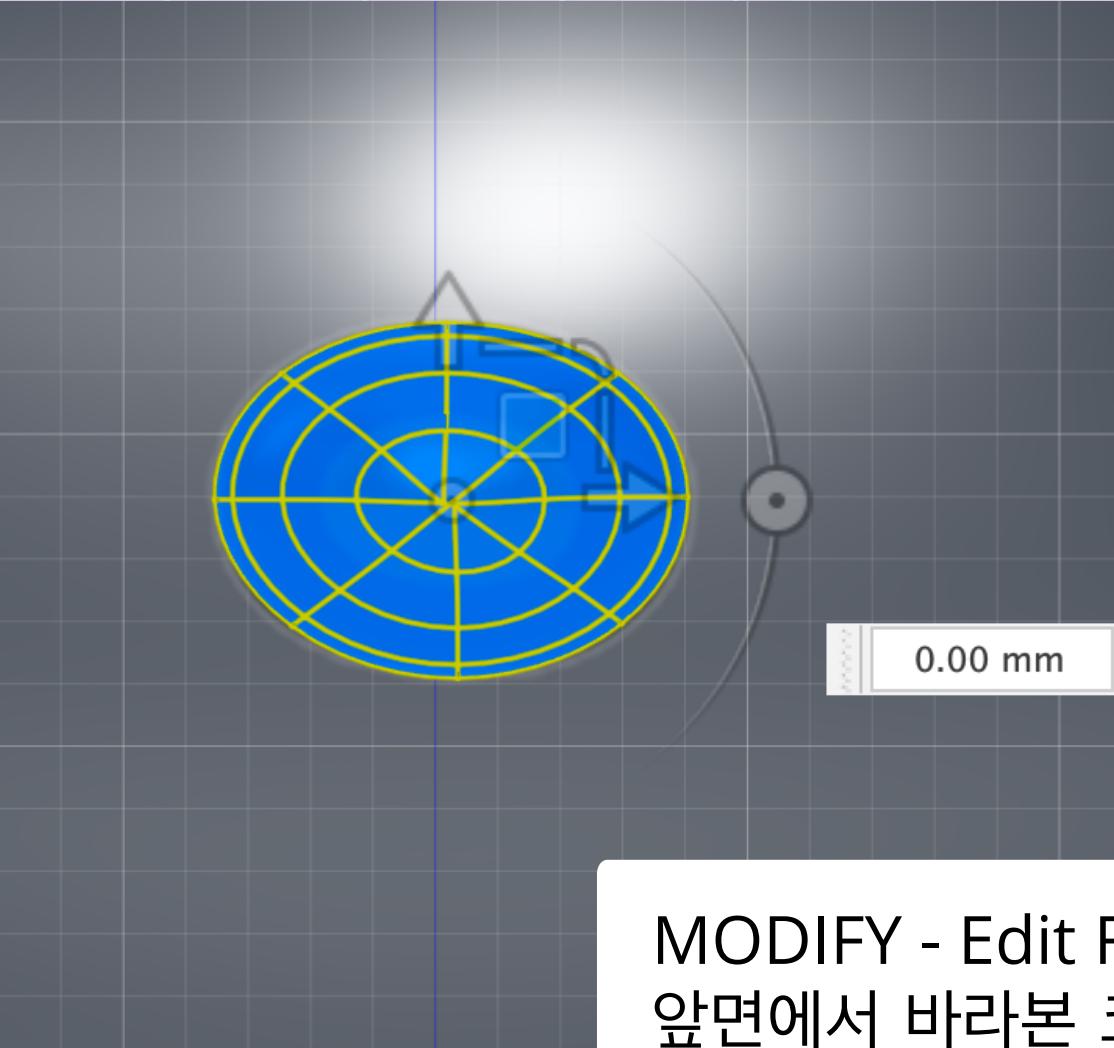


눈 부분의 사이즈 및 위치, 각도 조절을 완료합니다.



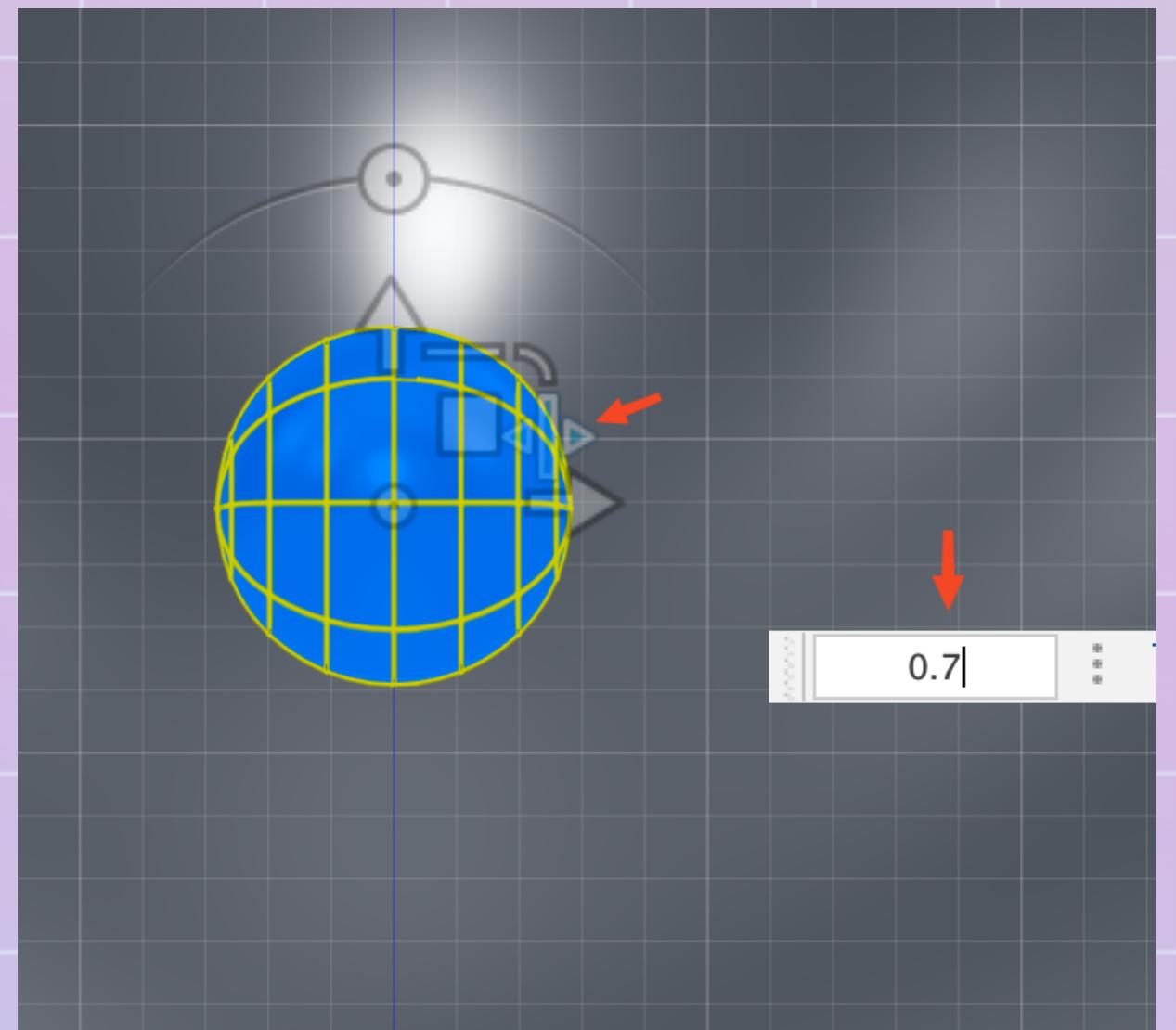


CREATE - Sphere 을 선택해 코의 가운데 부분을  
클릭하여 사이즈를 8로 지정합니다.

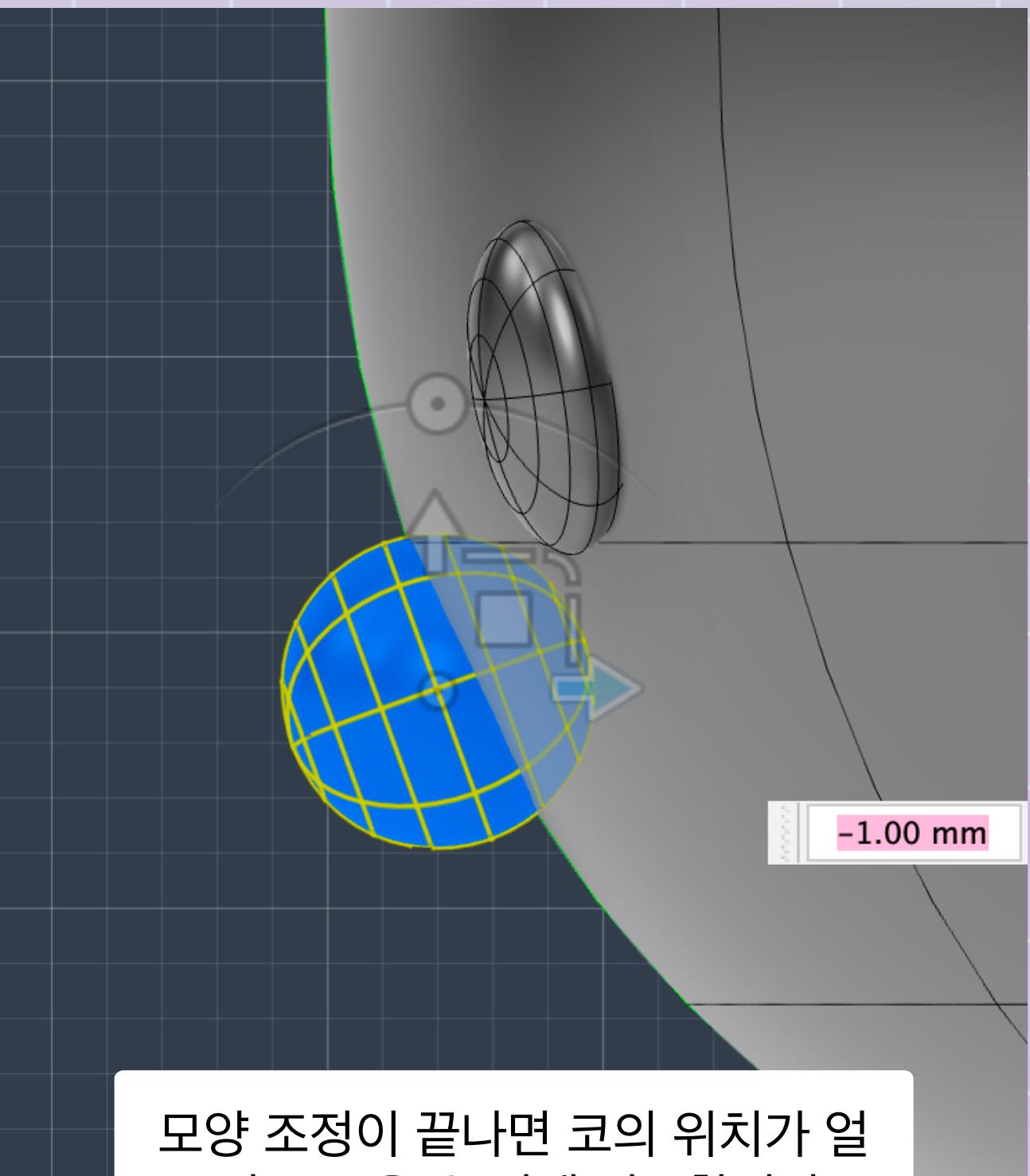


MODIFY - Edit Form 에서  
앞면에서 바라본 코의 모습을  
적당히 만듭니다





측면으로 돌려 측면에서 바라본 코의 모습을 조정합니다

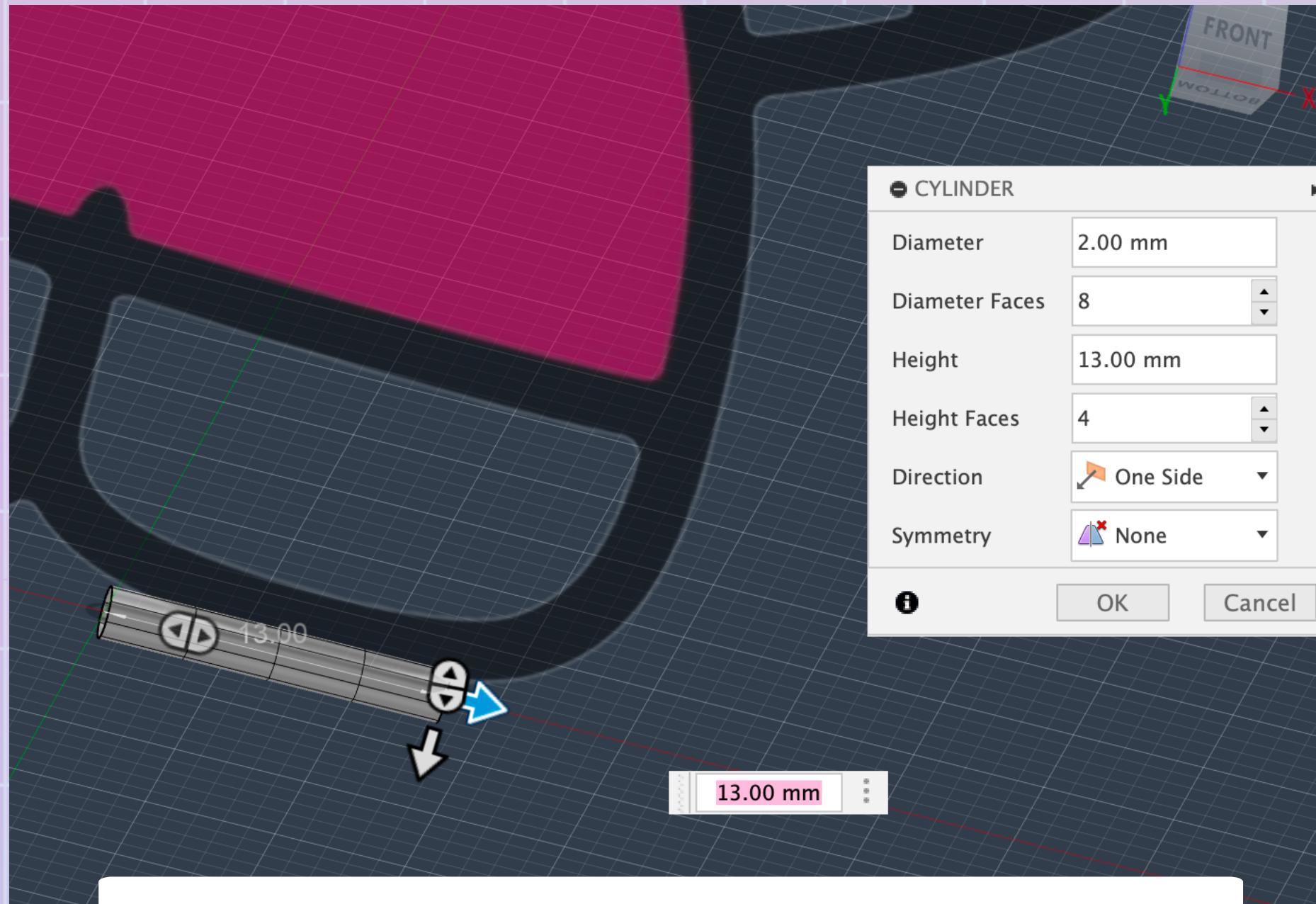


모양 조정이 끝나면 코의 위치가 얼굴 앞으로 올 수 있게 이동합니다.

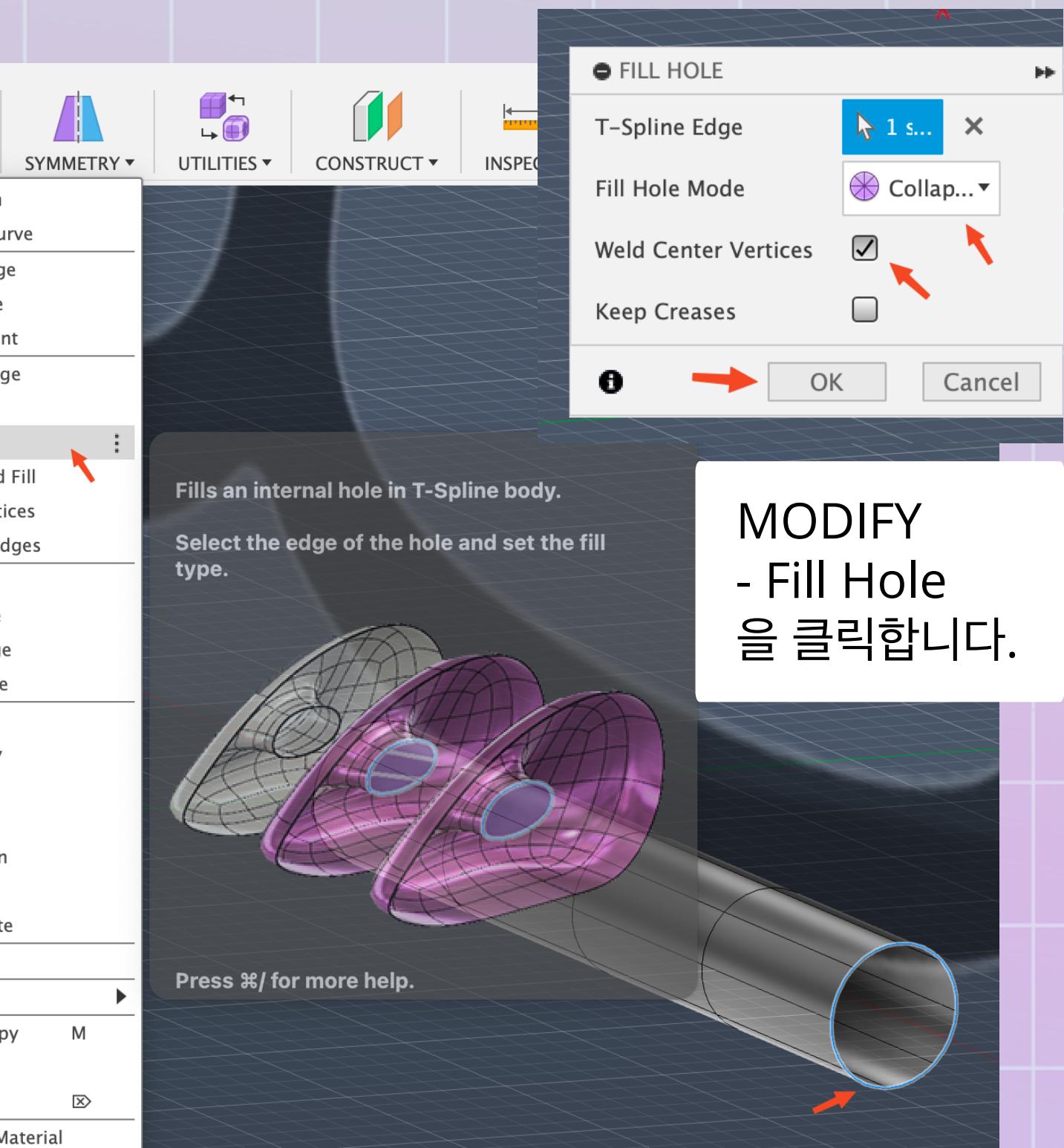
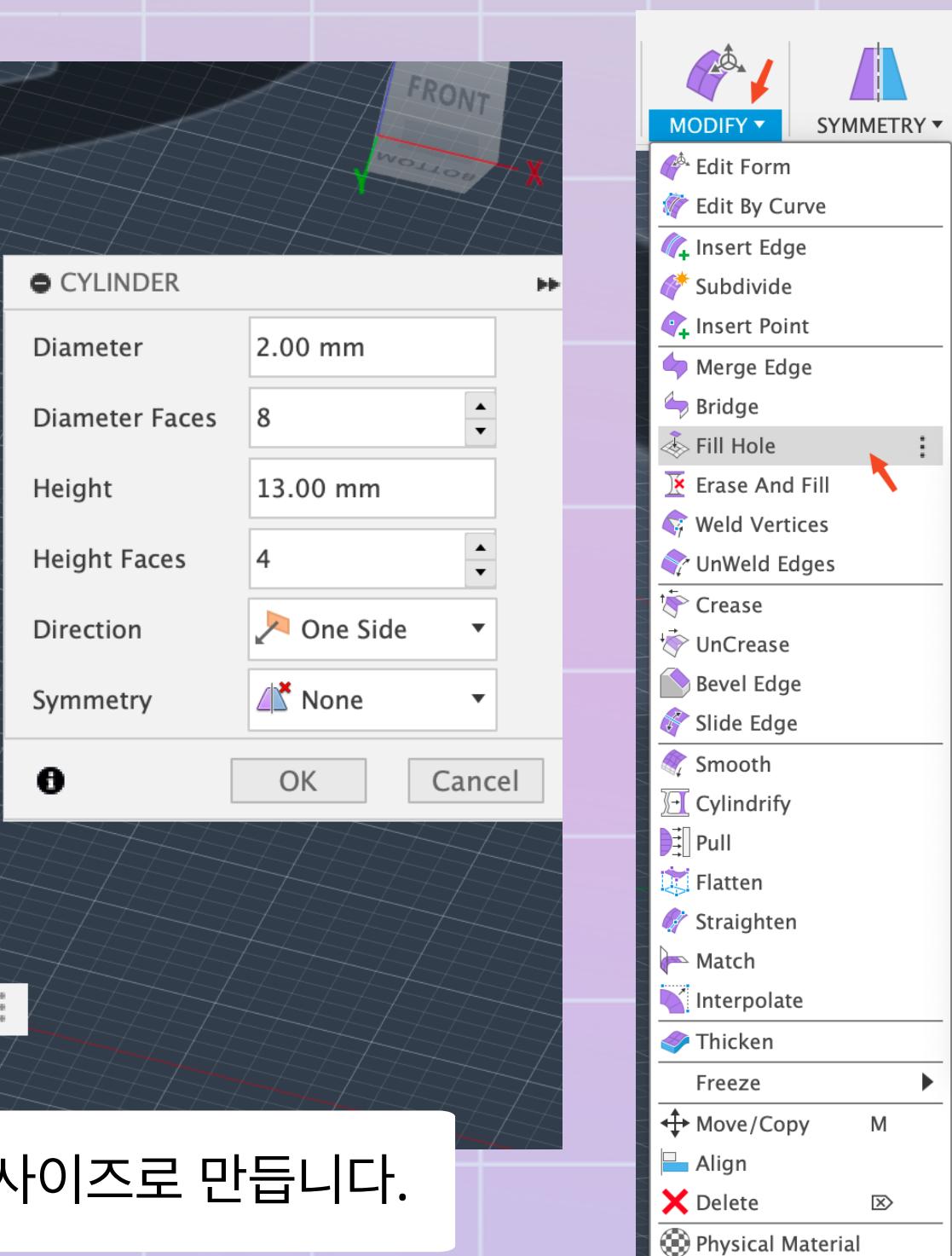




FRONT BOTTOM X Y Z



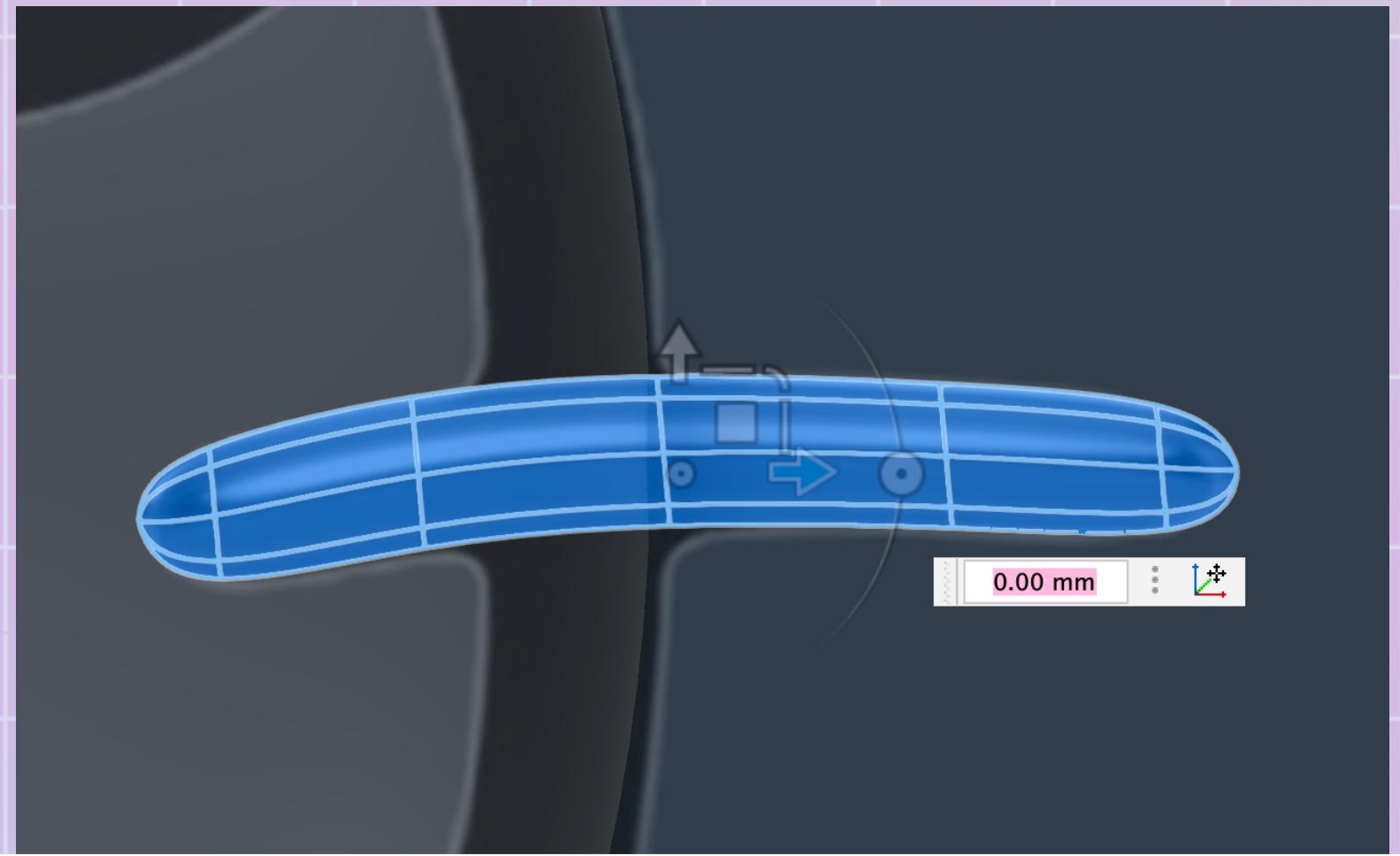
CREATE - Cylinder 를 불러와 적절한 사이즈로 만듭니다.



MODIFY  
- Fill Hole  
을 클릭합니다.

◀ ▶

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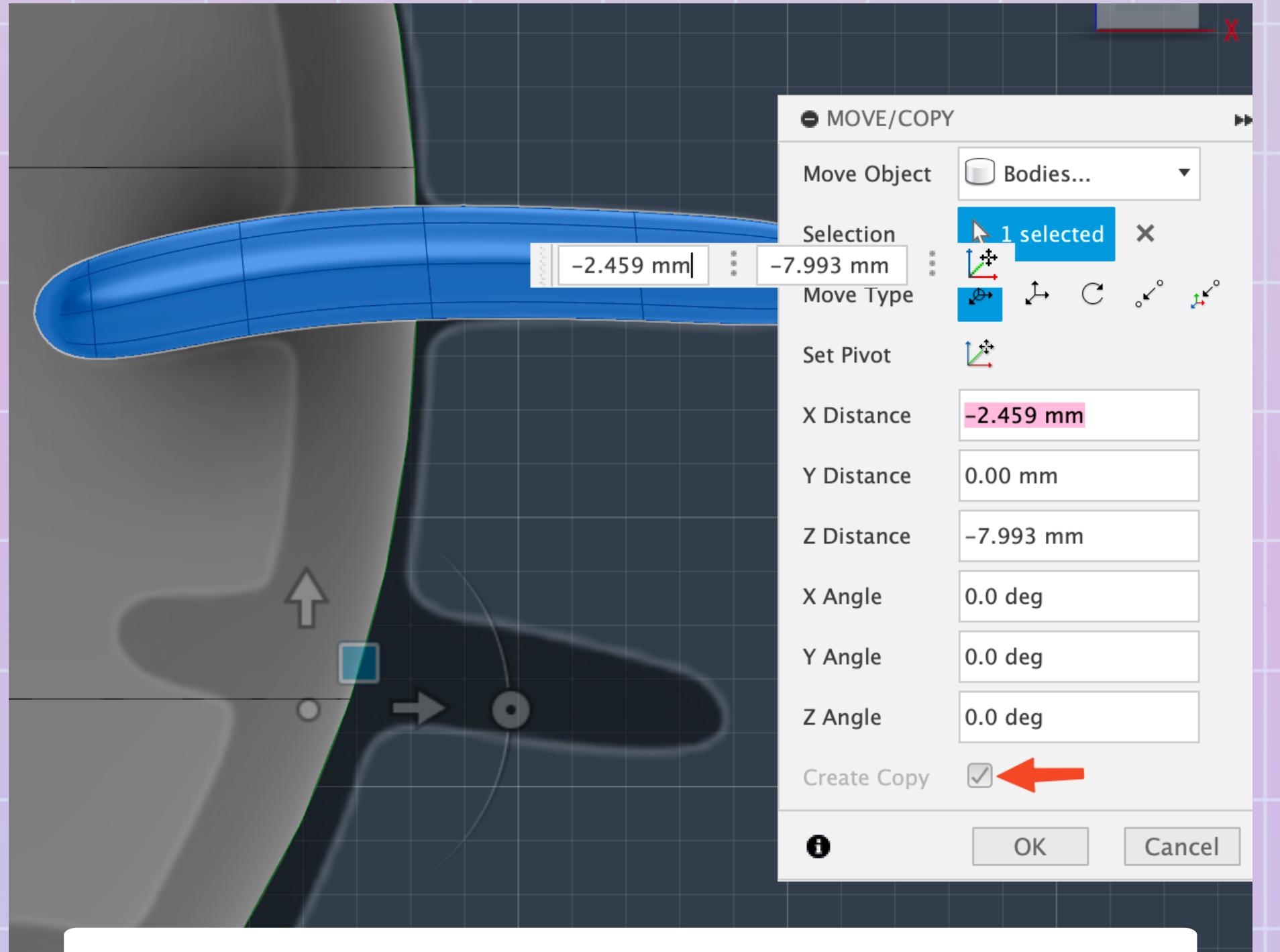


MODIFY - Edit Form에서 수염 모양을 적절히 조정합니다.

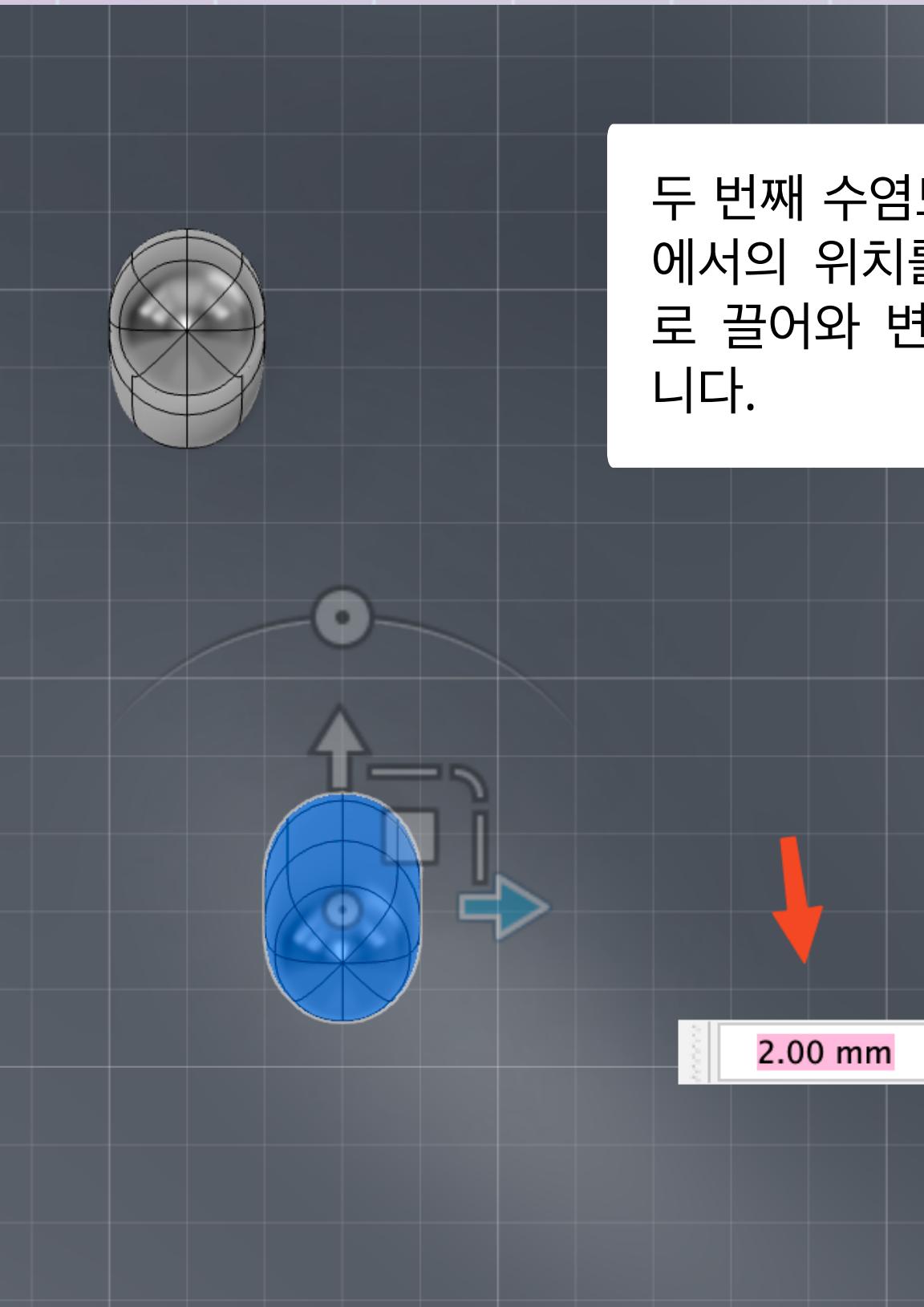


측면에서의 위치를 앞으로 끌어와 변경해줍니다.





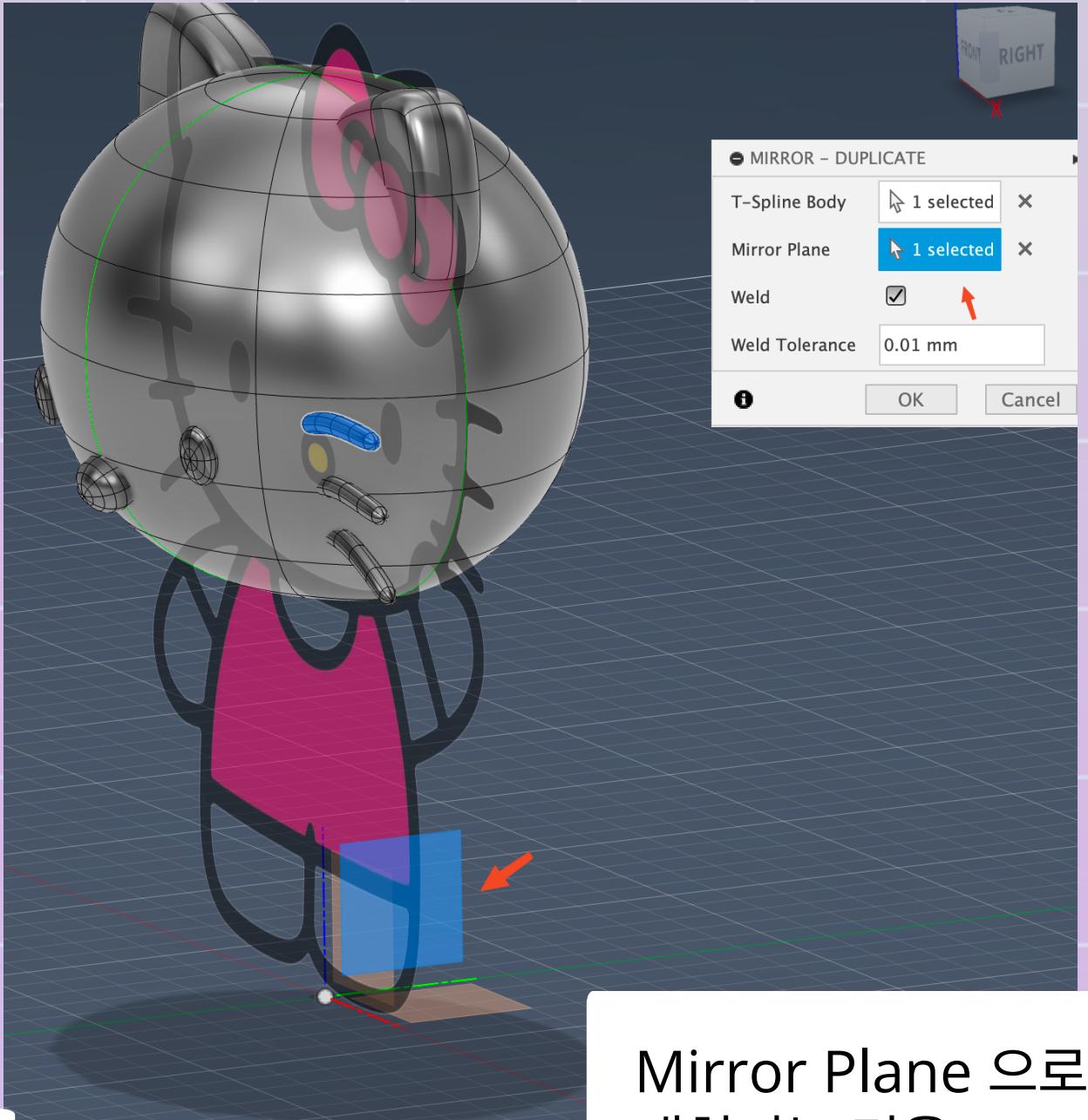
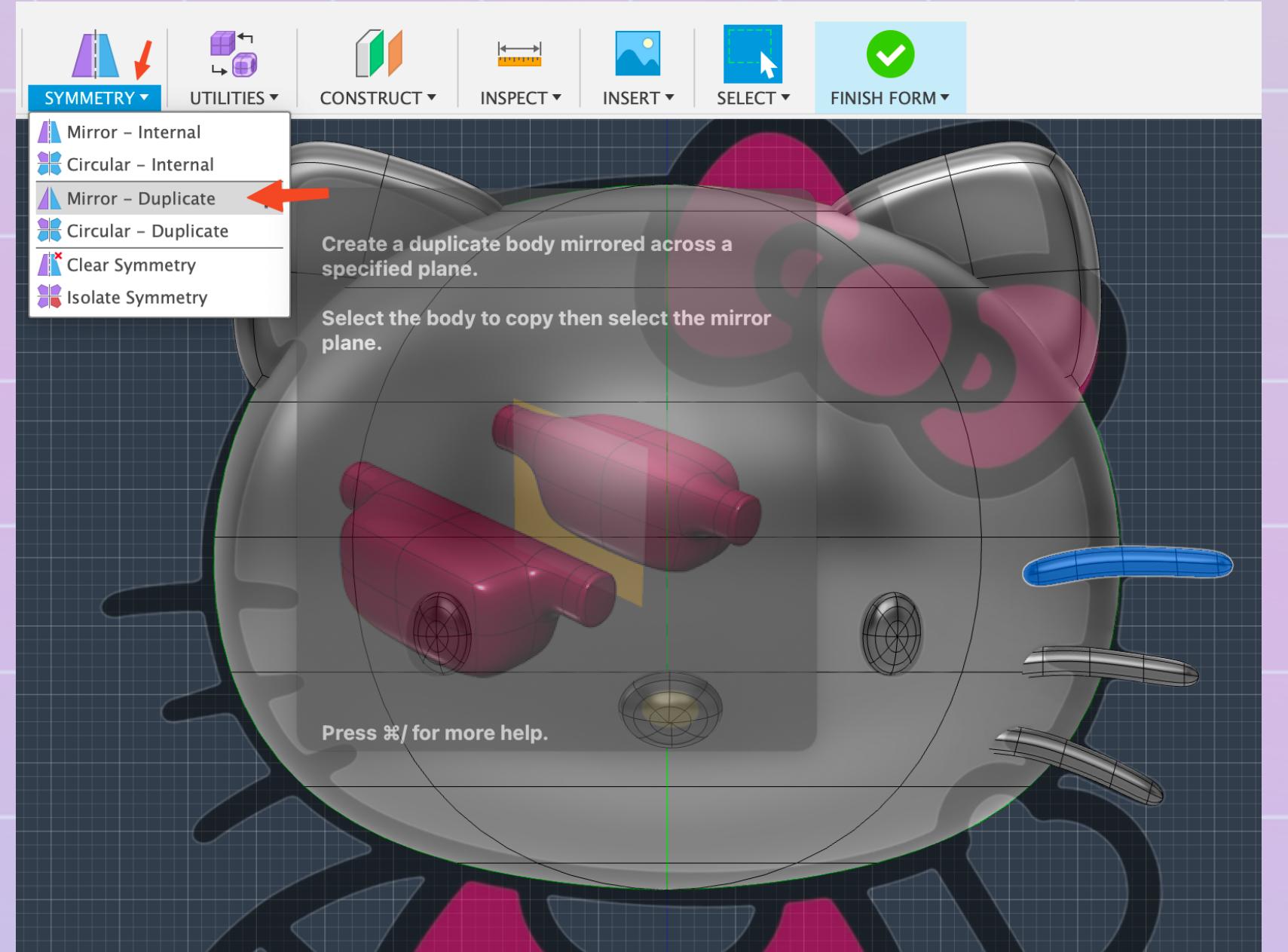
Bodies에서 수염을 우측클릭하여 MOVE/COPY 를 누르고, Create Copy에 체크를 한 후 OK를 눌러줍니다.

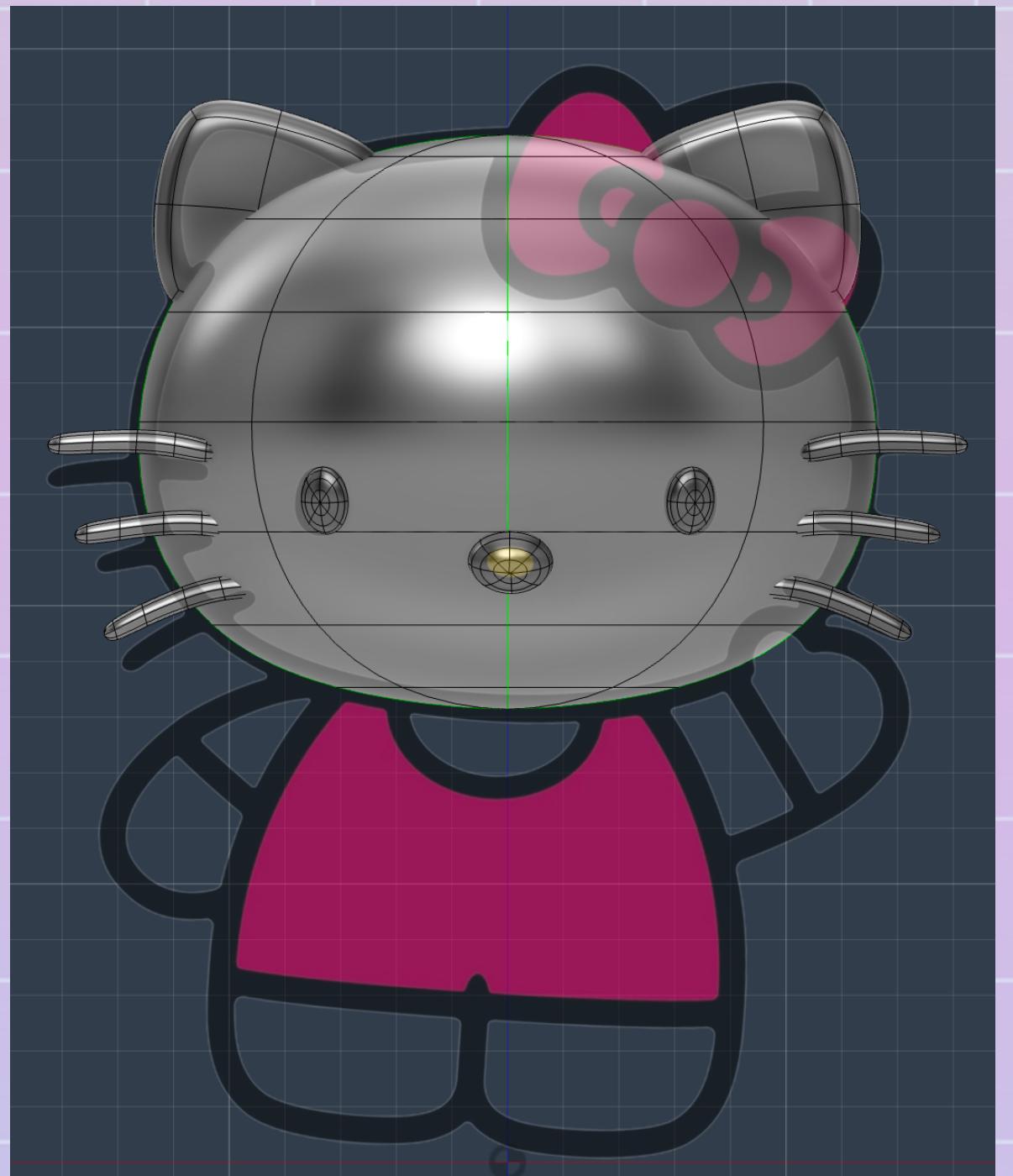


두 번째 수염도 측면  
에서의 위치를 앞으  
로 끌어와 변경해줍  
니다.

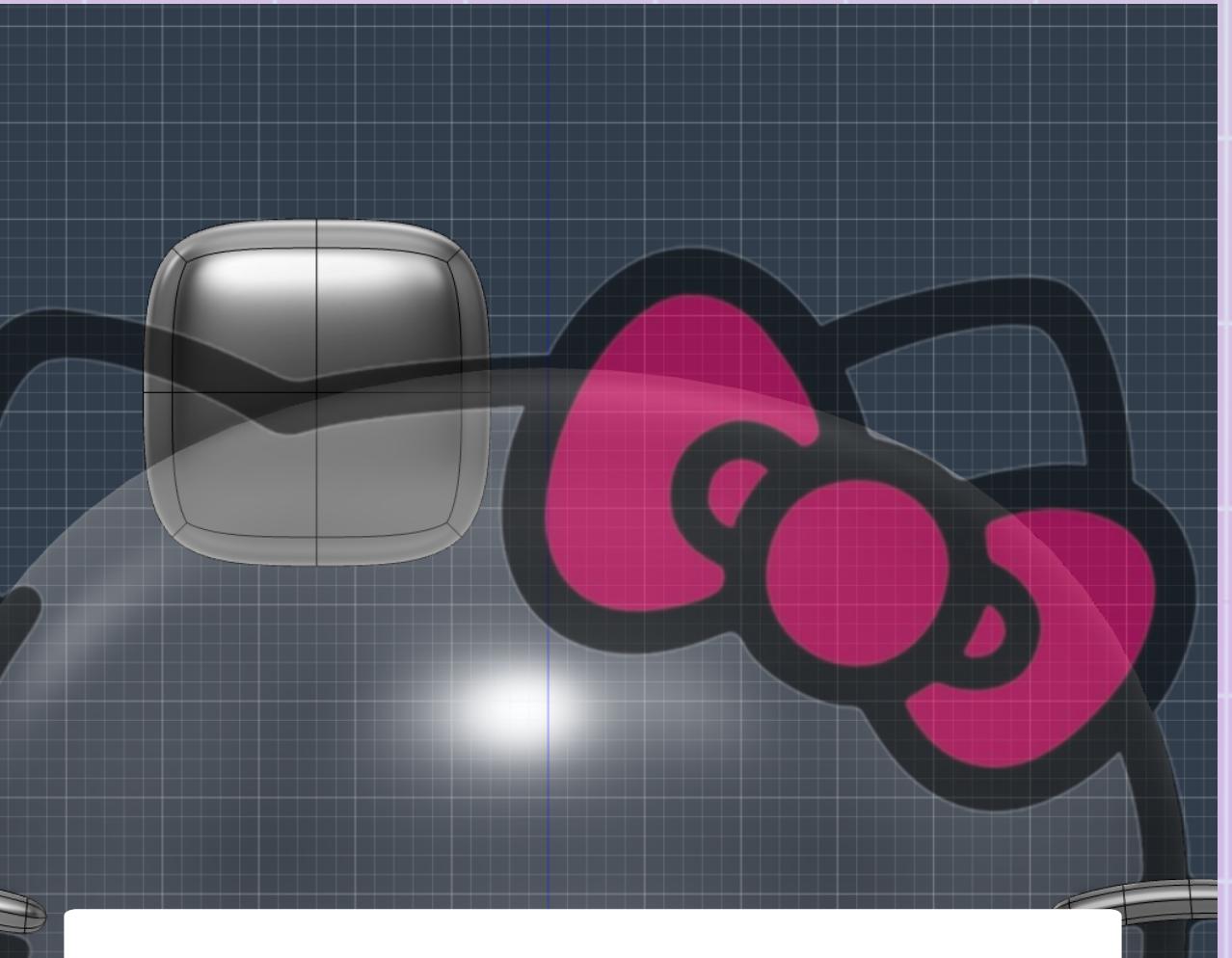


3번째 수염





이렇게 3개의 수염을 각각 복제해주면 수염 완성!



FORM에서 Box를 하나 삽입합니다.



MODIFY - Edit Form에서  
박스의 모양을 리본처럼  
적절히 조정하고,  
SYMMETRY: Mirror -  
Duplicate 를 선택해 수염  
처럼 리본을 복제합니다.  
간격도 적절히 조절합니다.

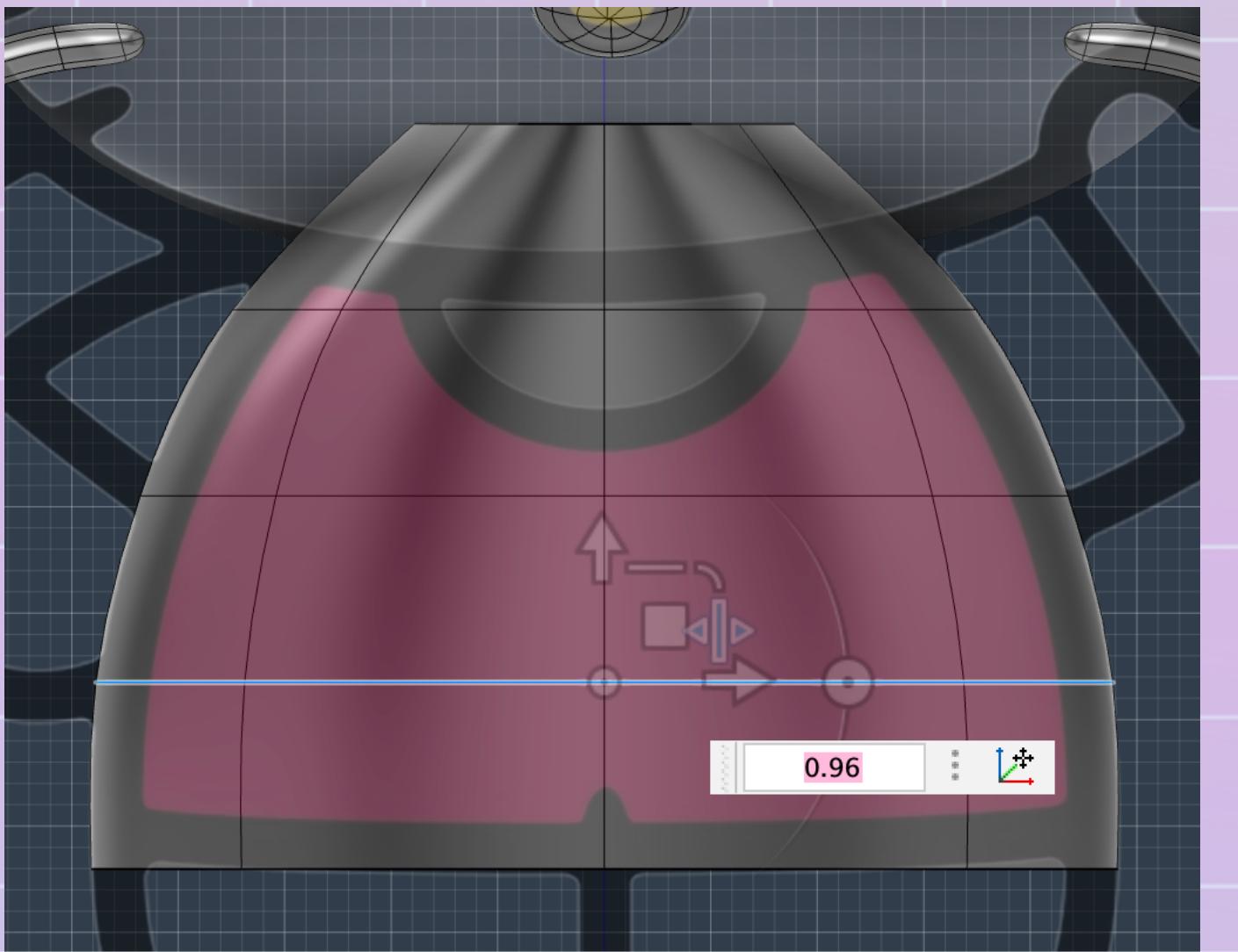
Quadbail을 삽입해 사이즈를 13으로 합니다.

Cylinder를 삽입해  
Diameter: 40  
Height: 35  
로 지정합니다.

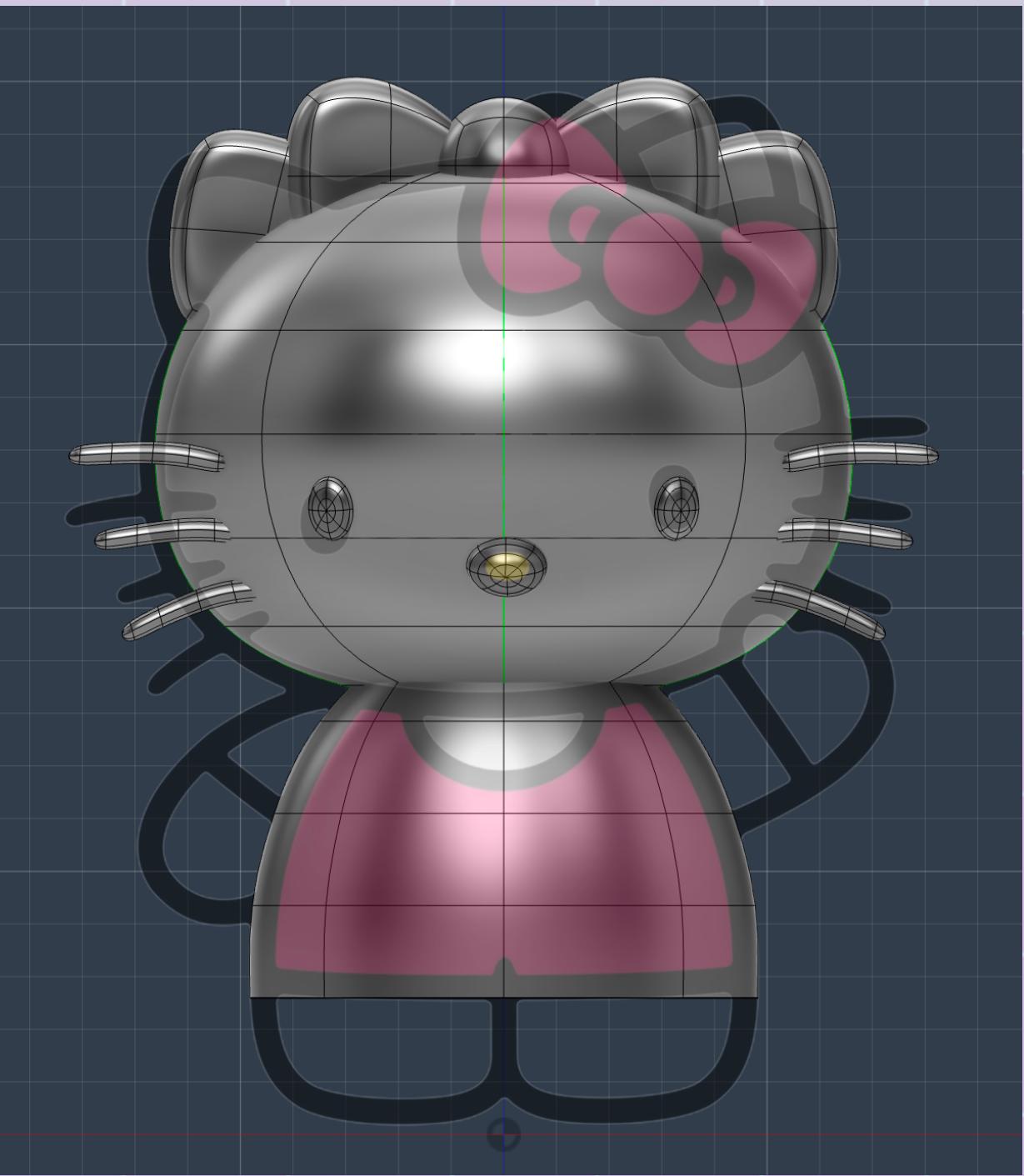
측면에서 위치를 앞으로 빼면 완성!

◀ ▶

- □ ×



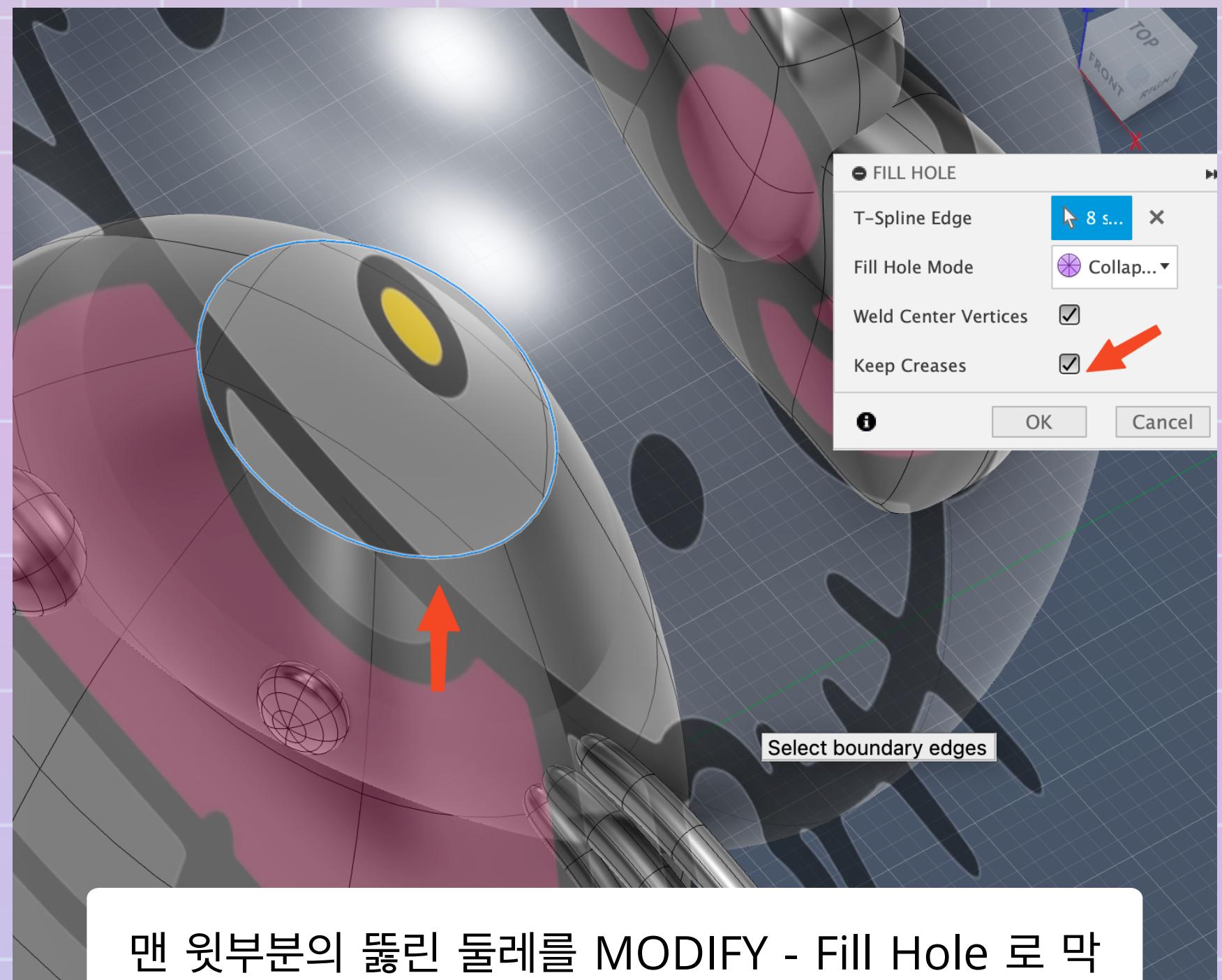
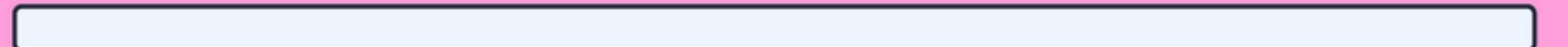
한 줄씩 수치를 조정해 몸통의 사이즈를 변형시킵니다.



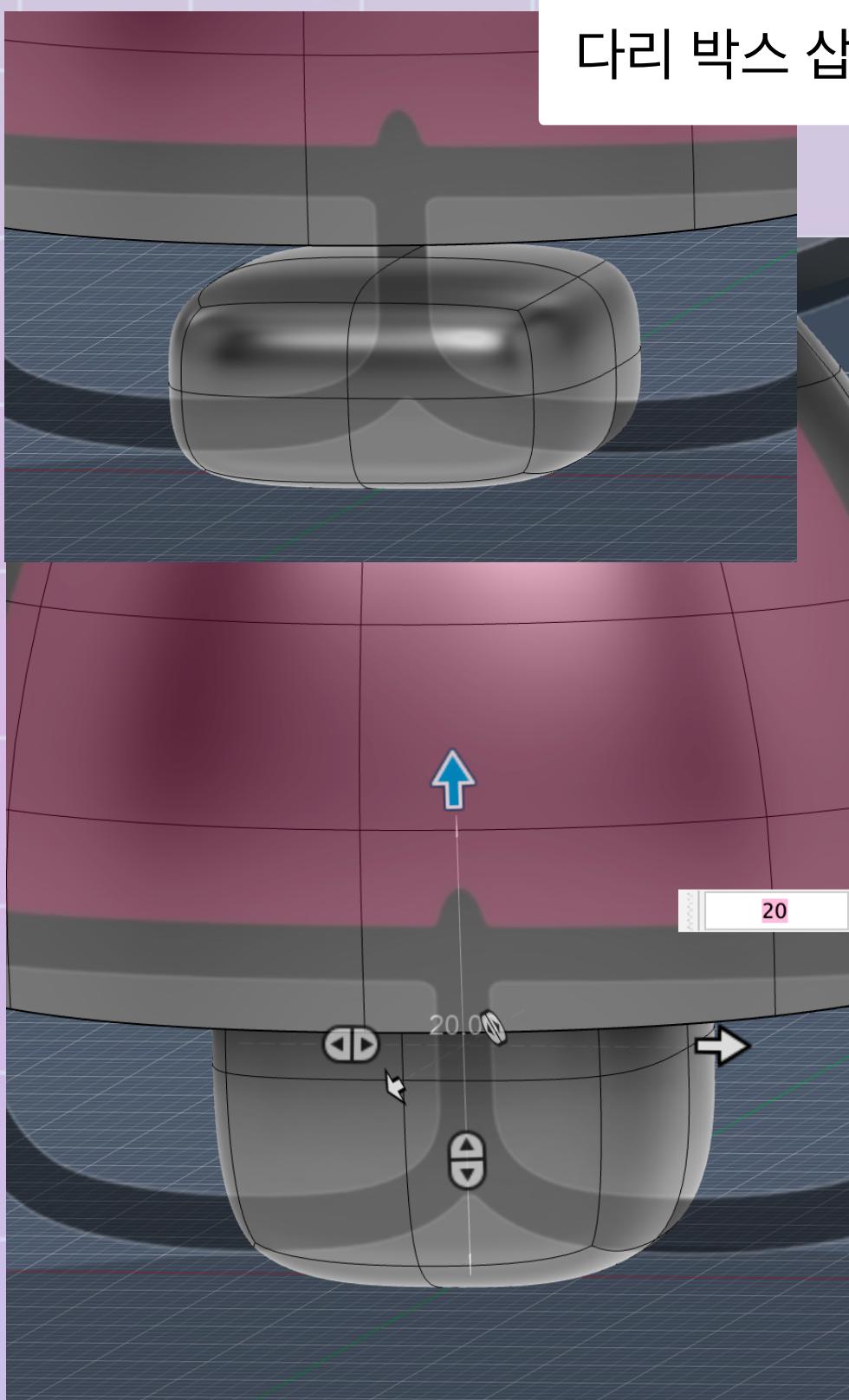
☰

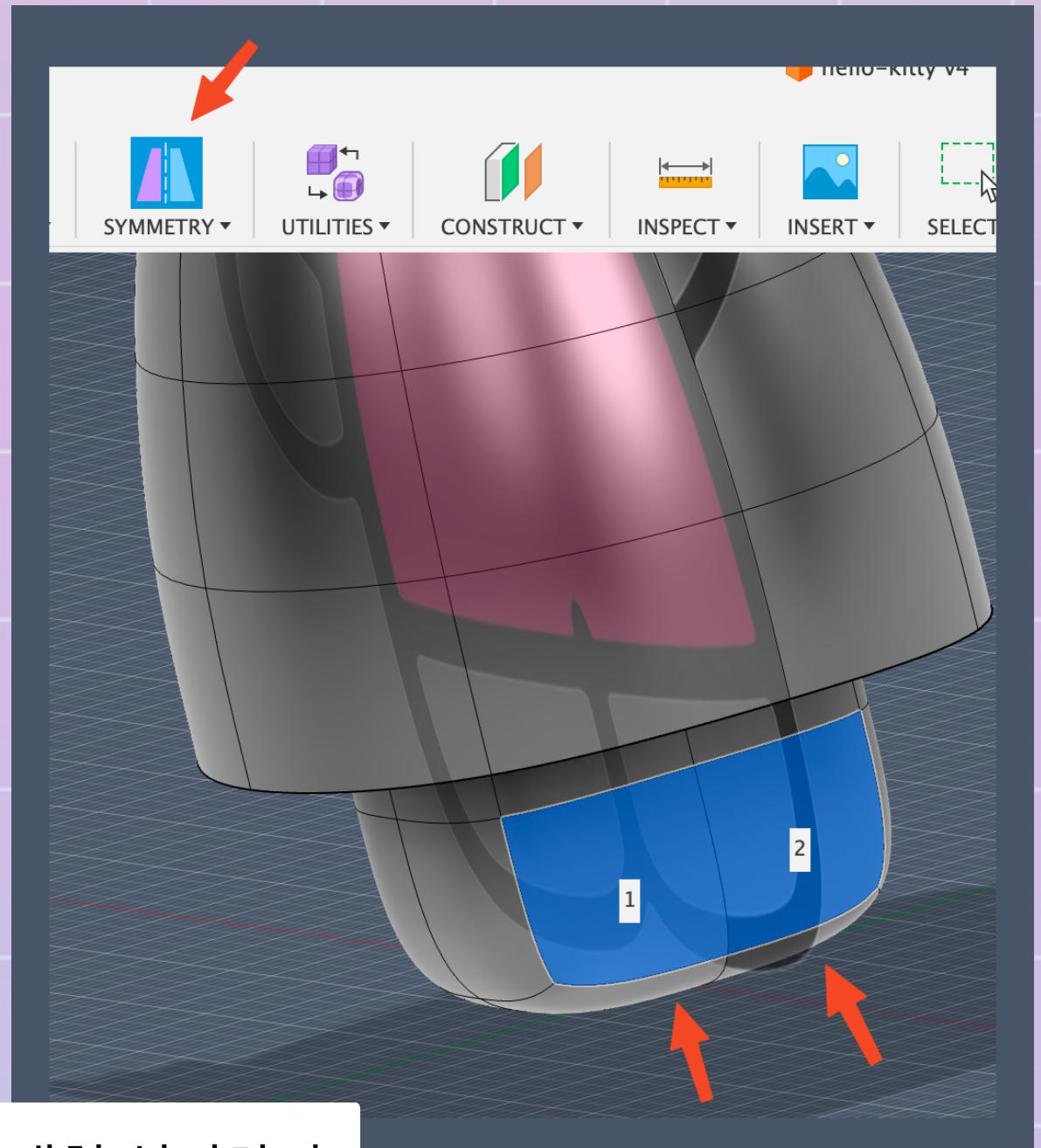
^

|

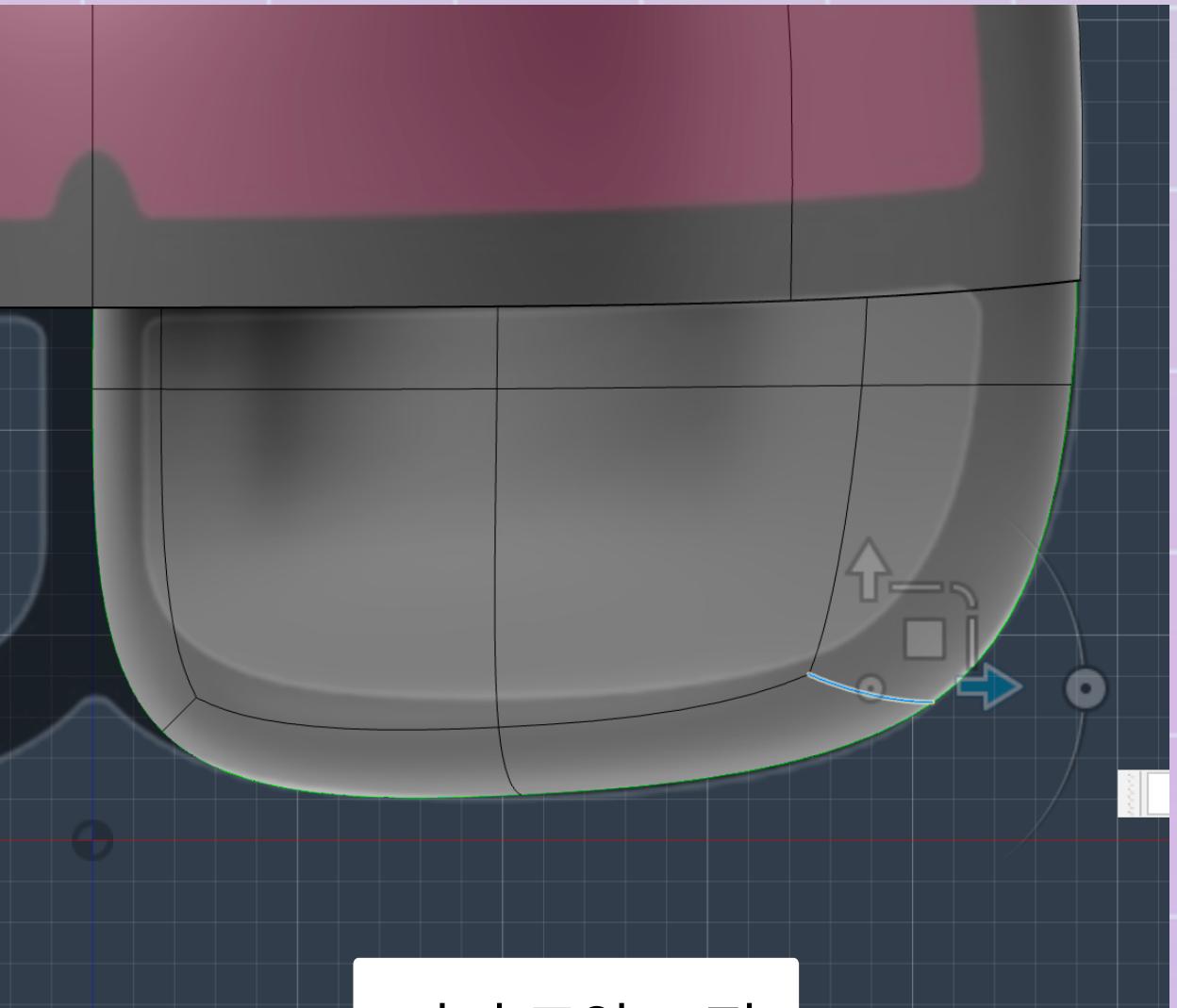


맨 윗부분의 뚫린 둘레를 MODIFY - Fill Hole 로 막아줍니다. 이 때, Keep Creases에 체크를 해줍니다.  
맨 아래쪽의 구멍에도 같은 작업을 해줍니다.

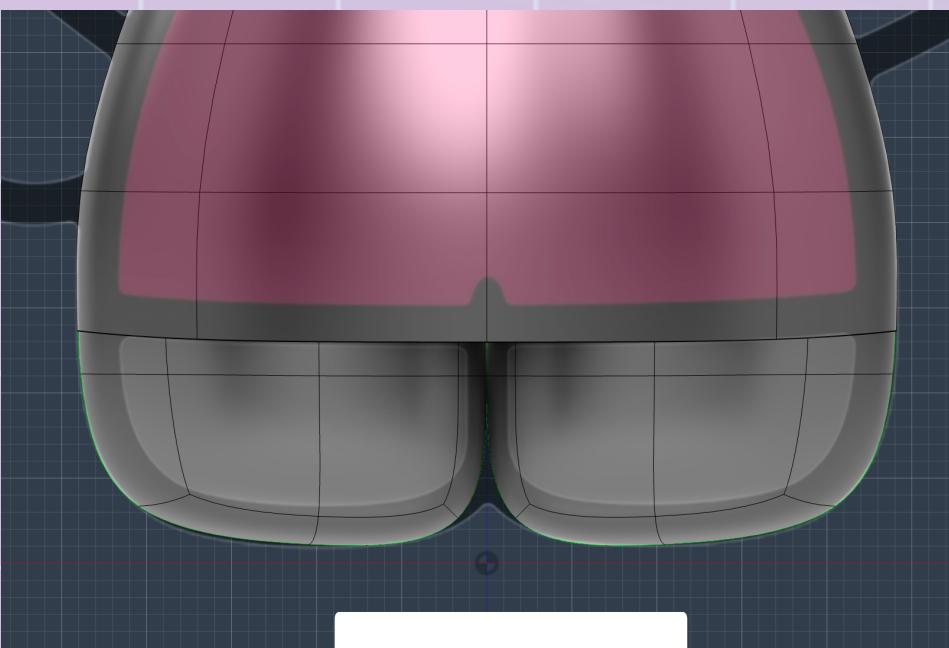




대칭 설정하기

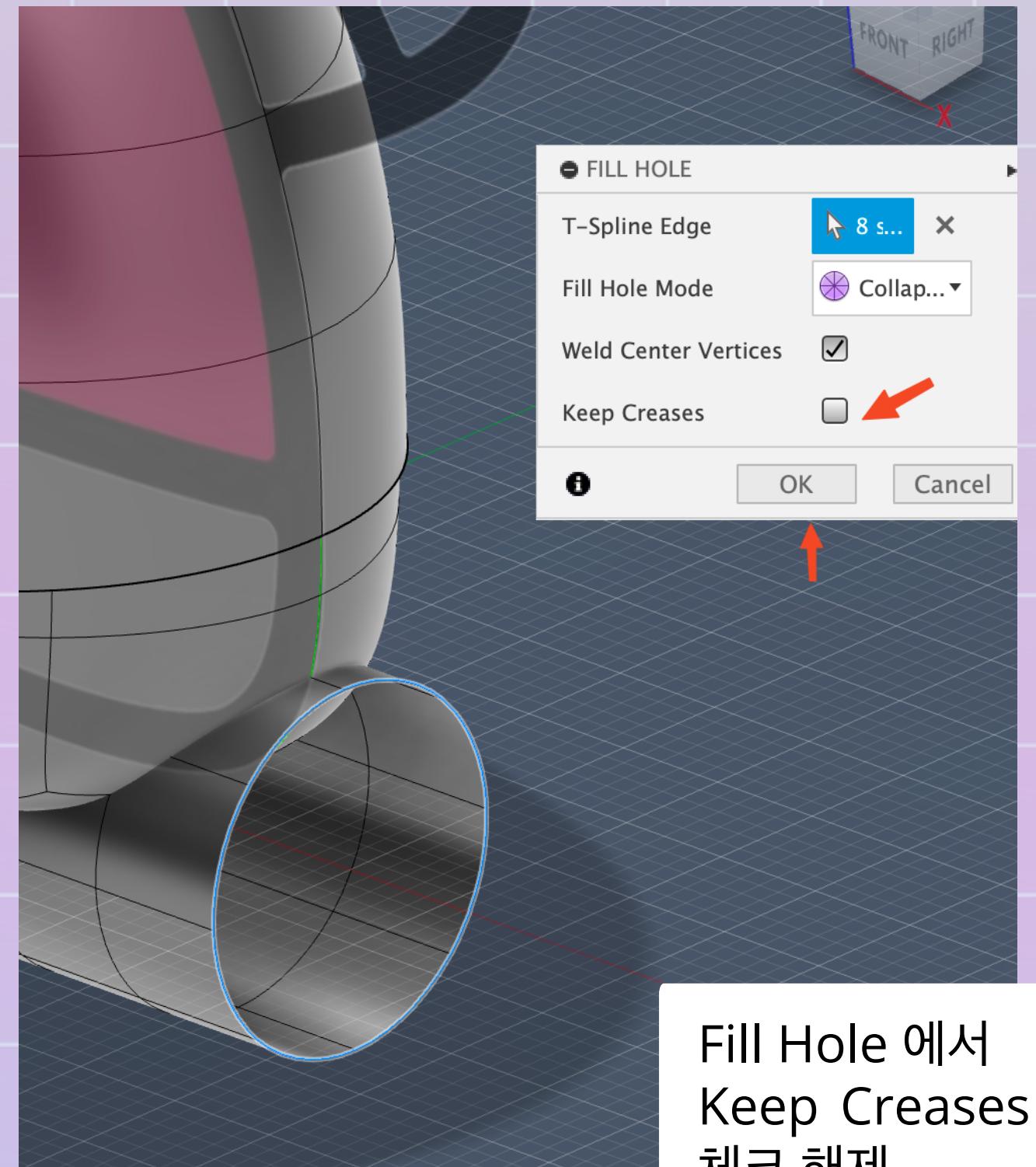


다리 모양 조정



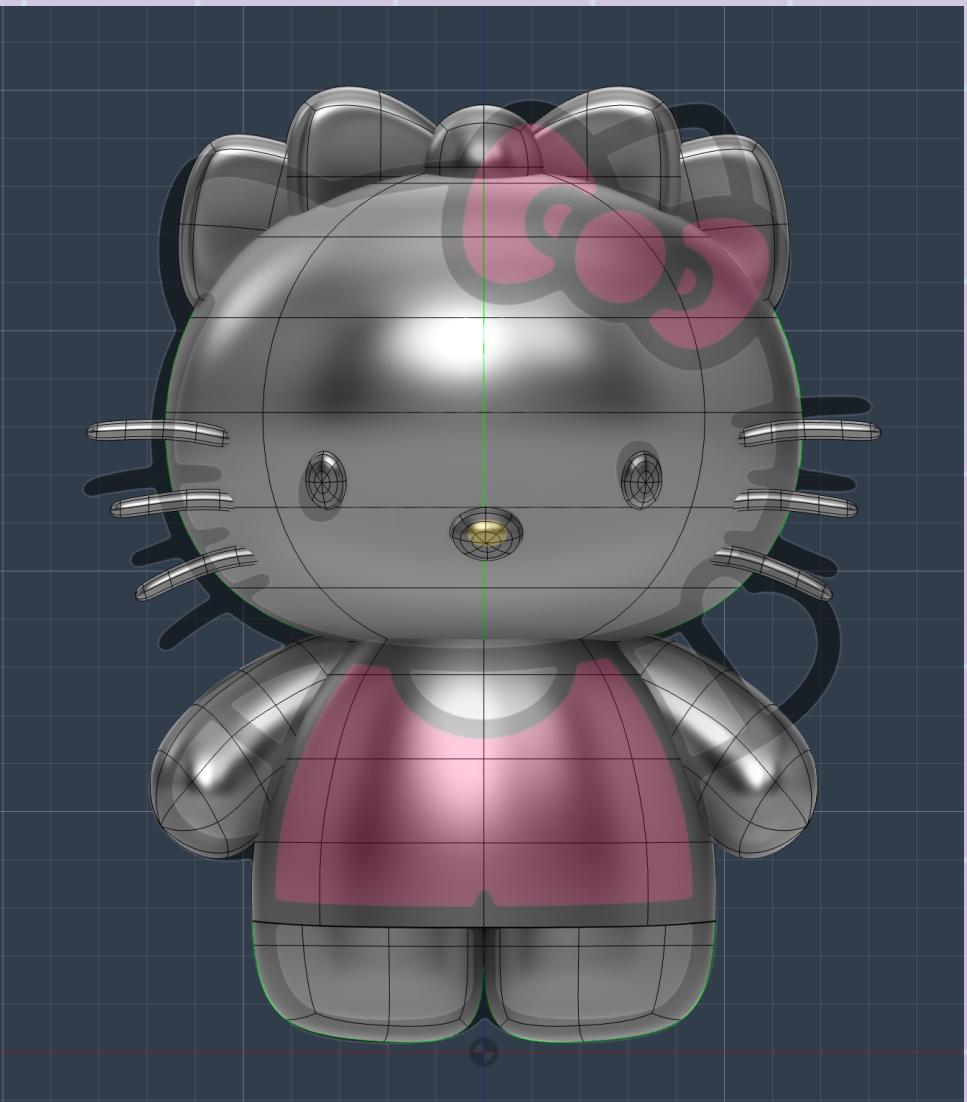
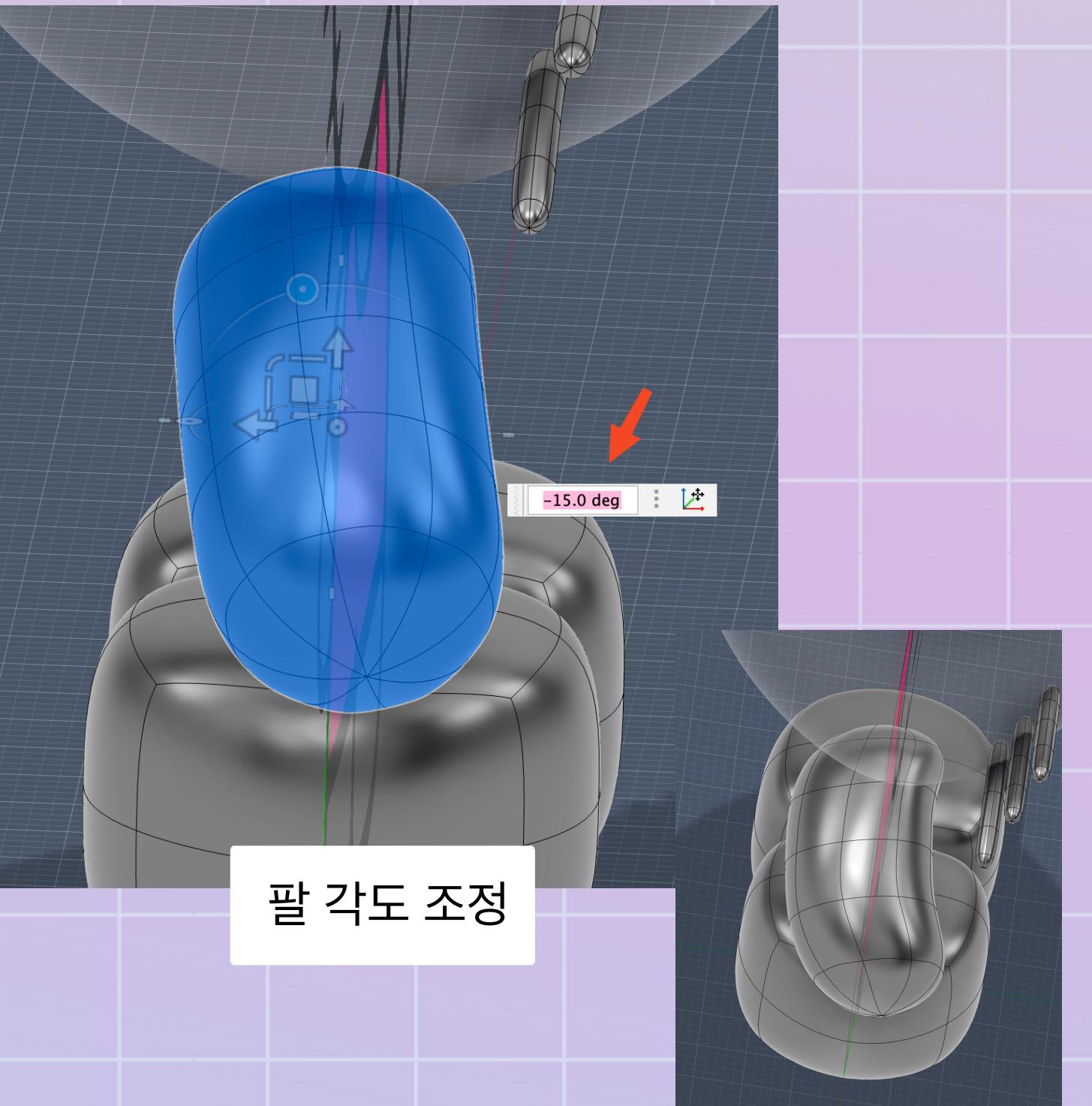
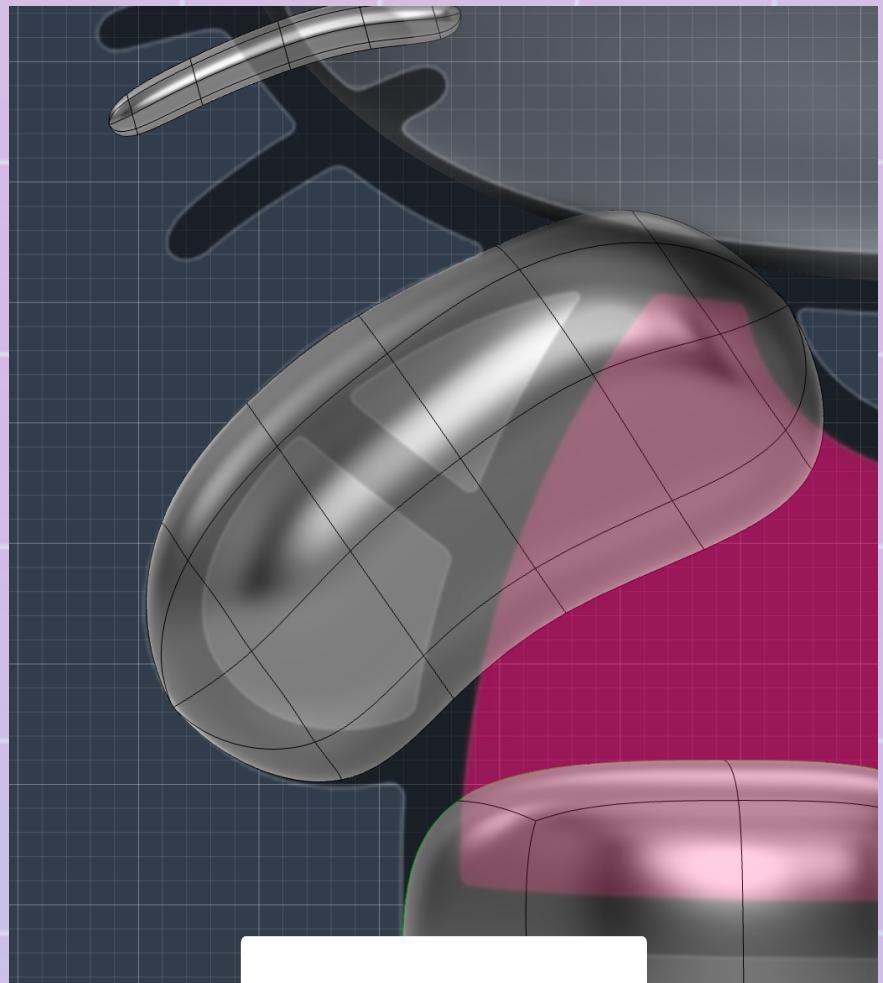
다리 복제

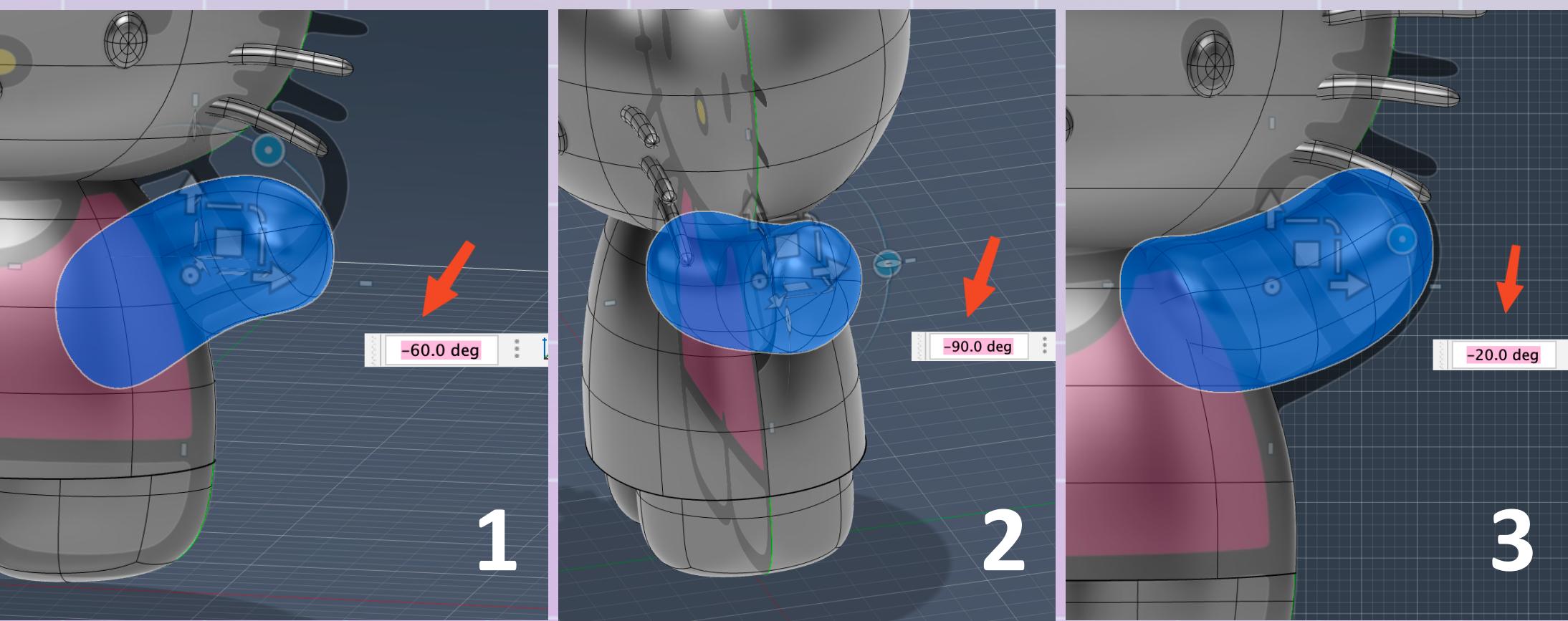
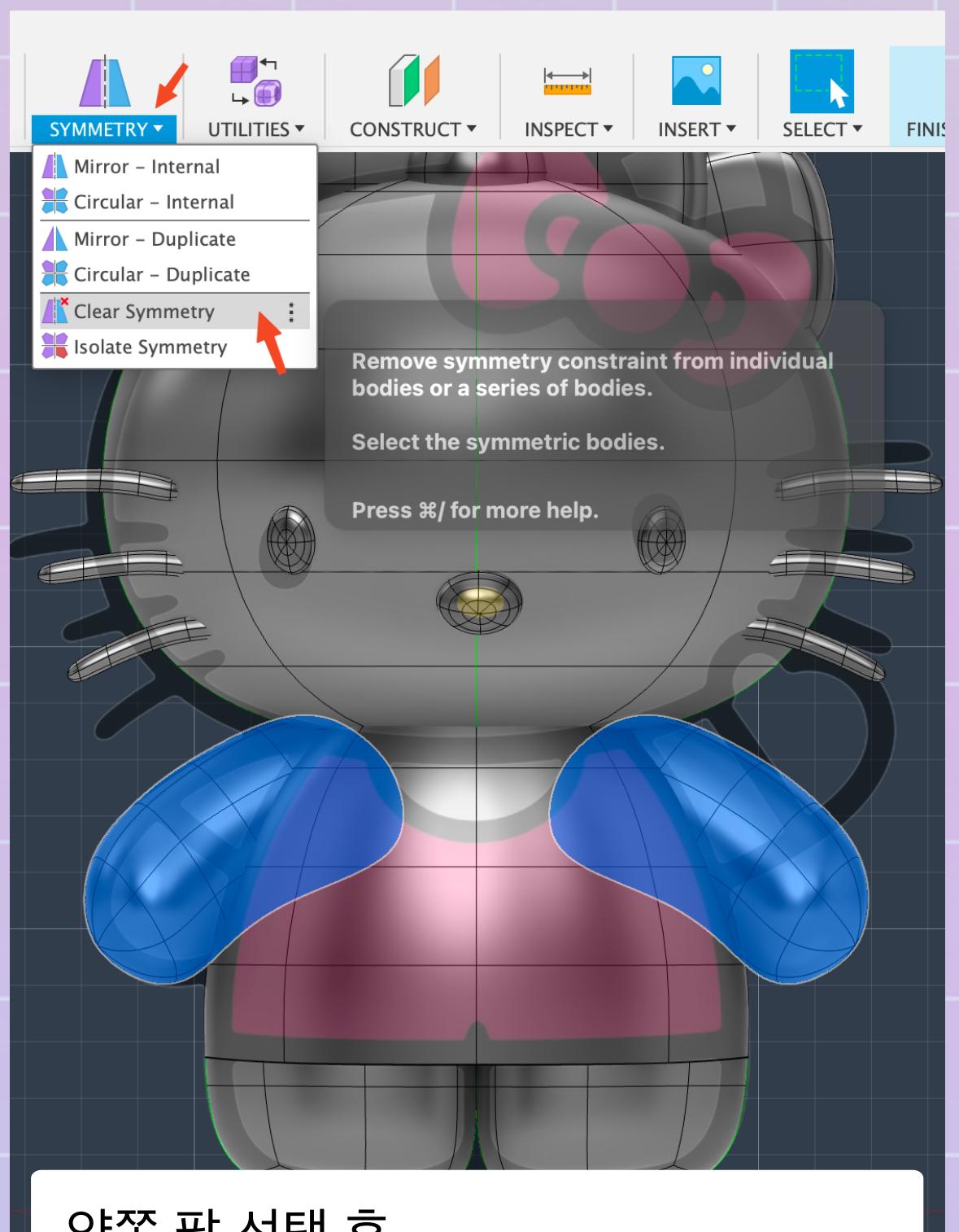




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- □ X

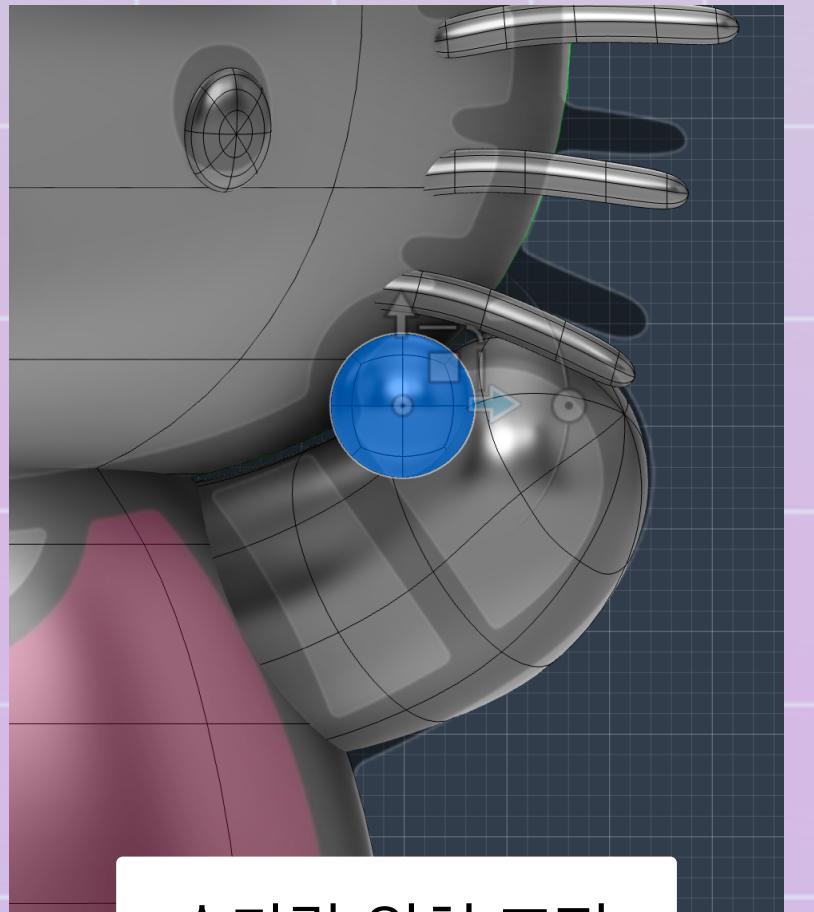
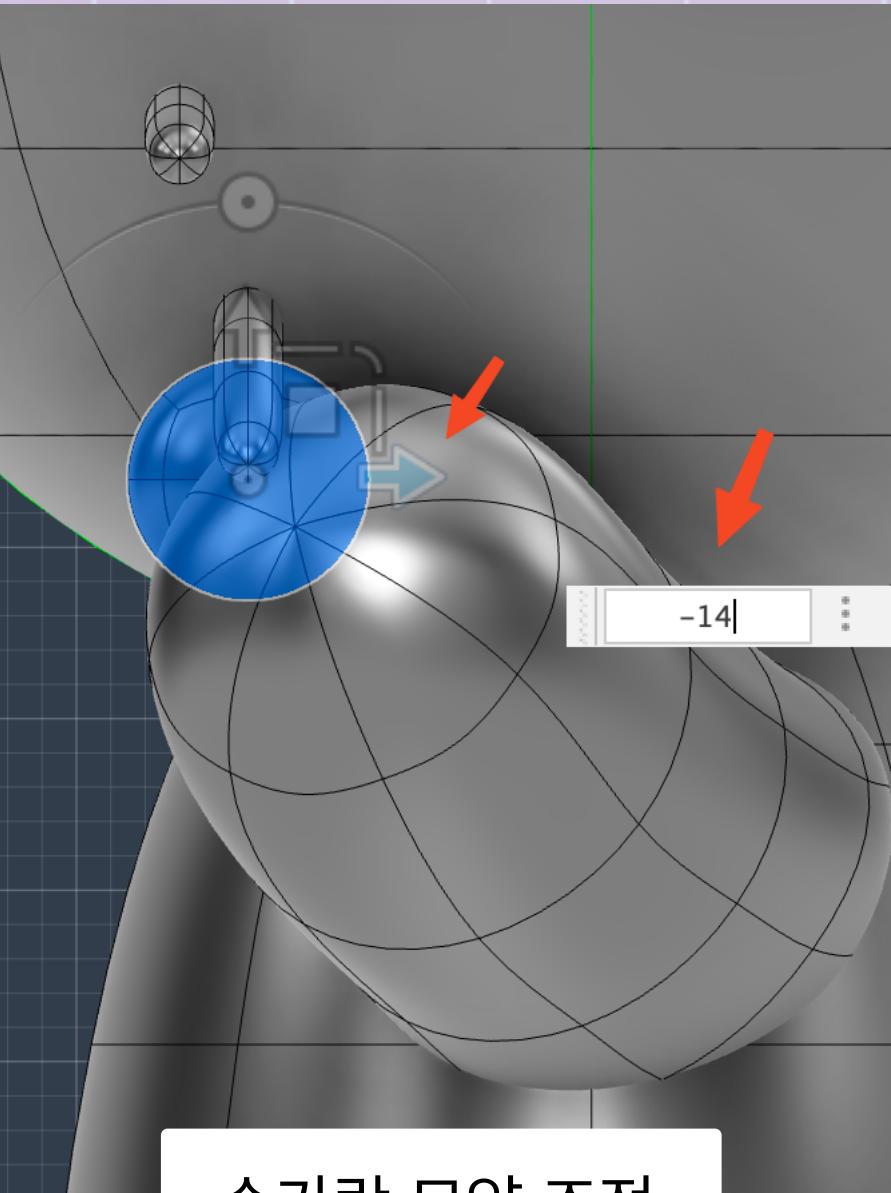
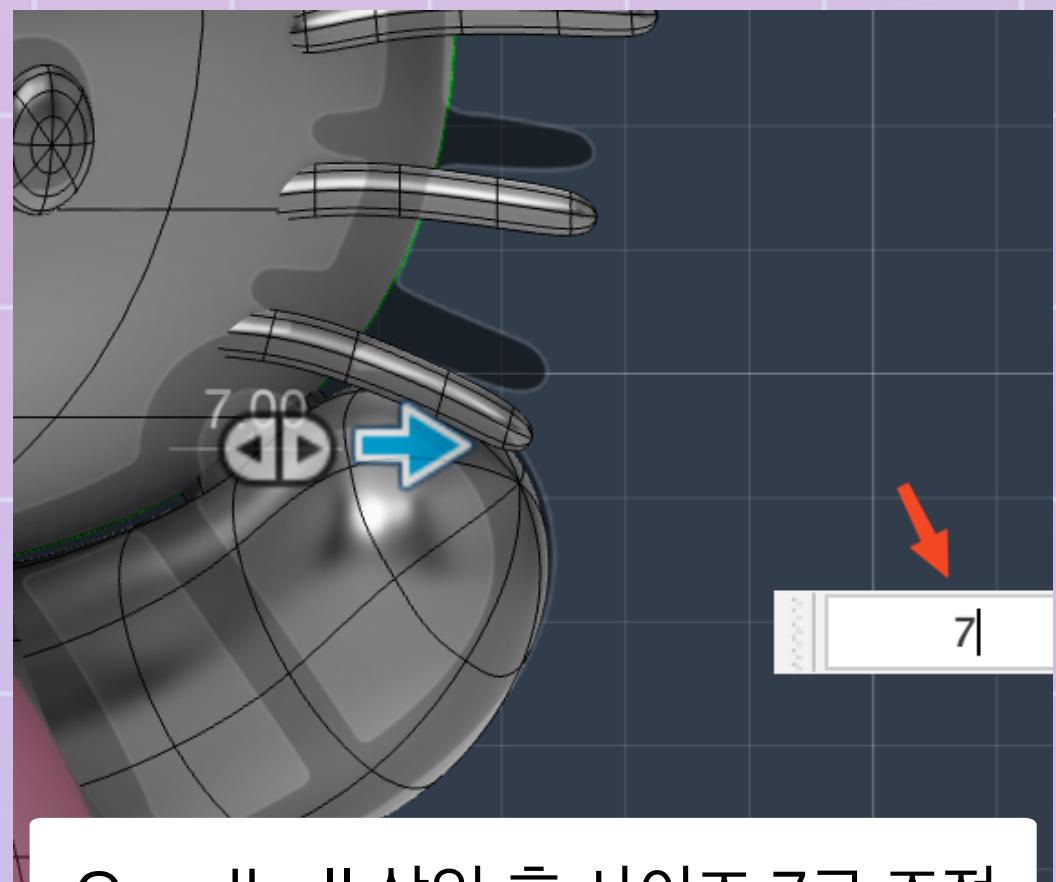




팔 완성!

◀ ▶

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^

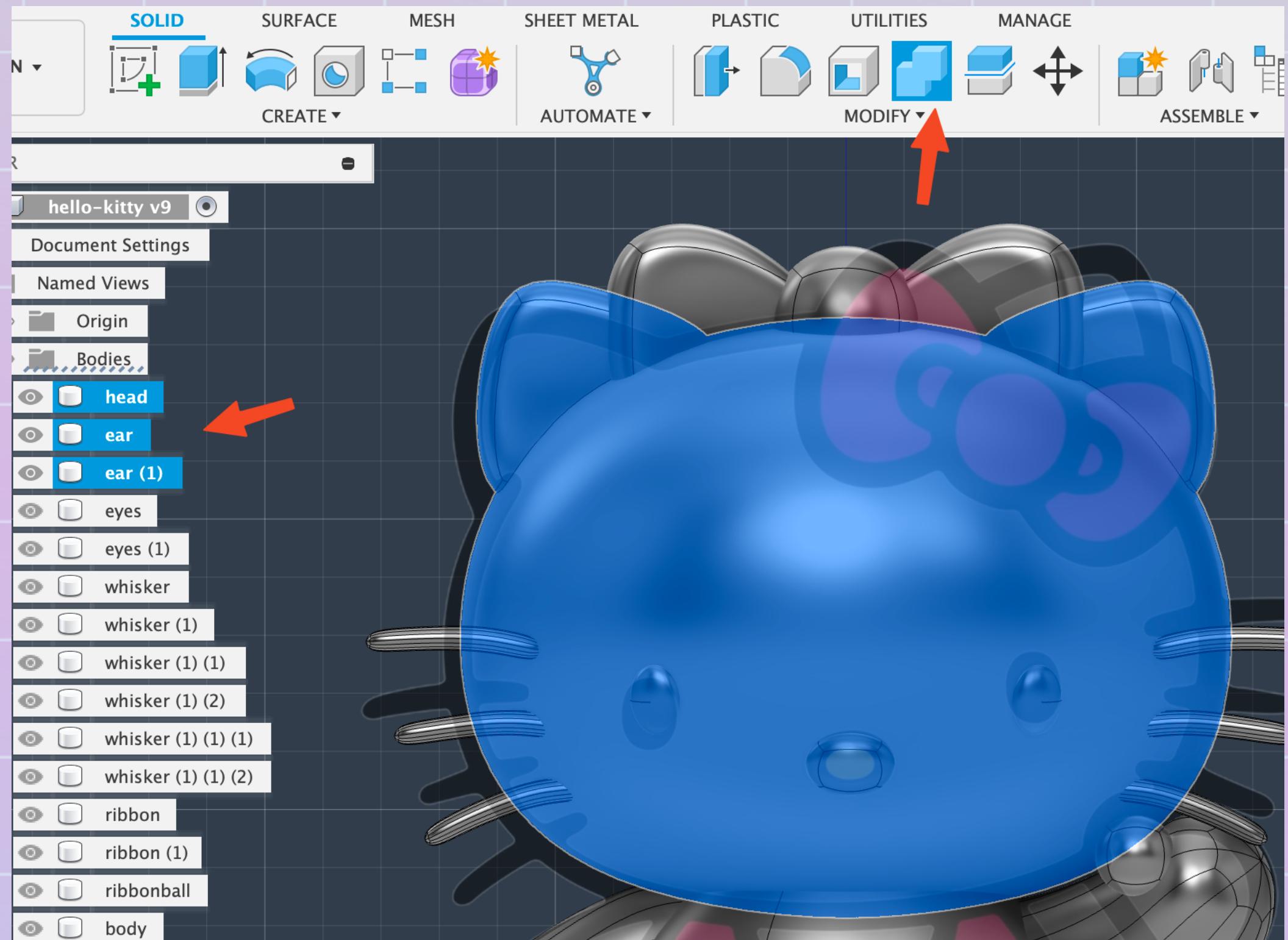
|



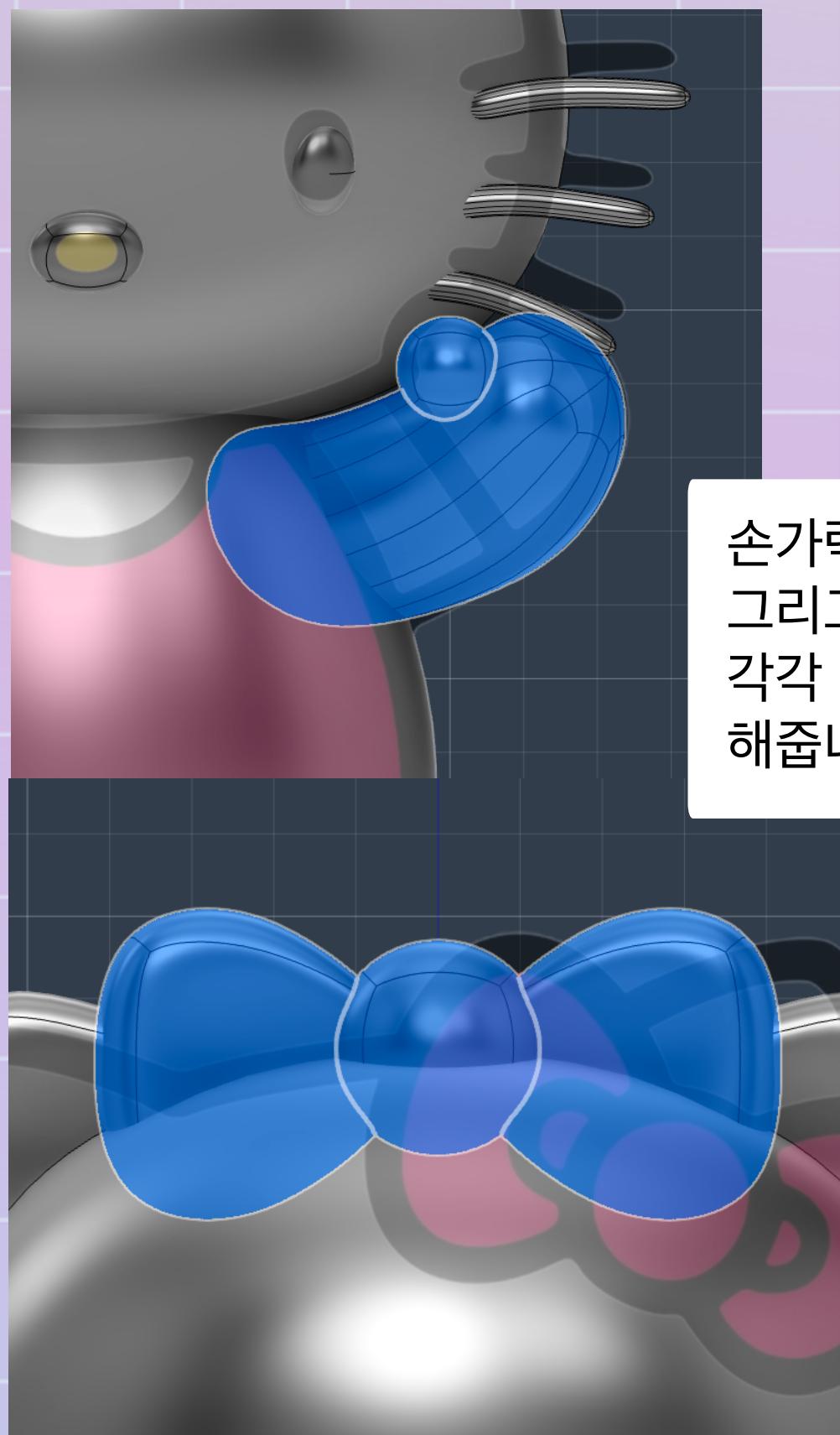
hello-kitty v7\*



모든 모양 만들었으므로 Finish Form 클릭



머리(얼굴), 양쪽 귀 선택해서 Combine 해줍니다.



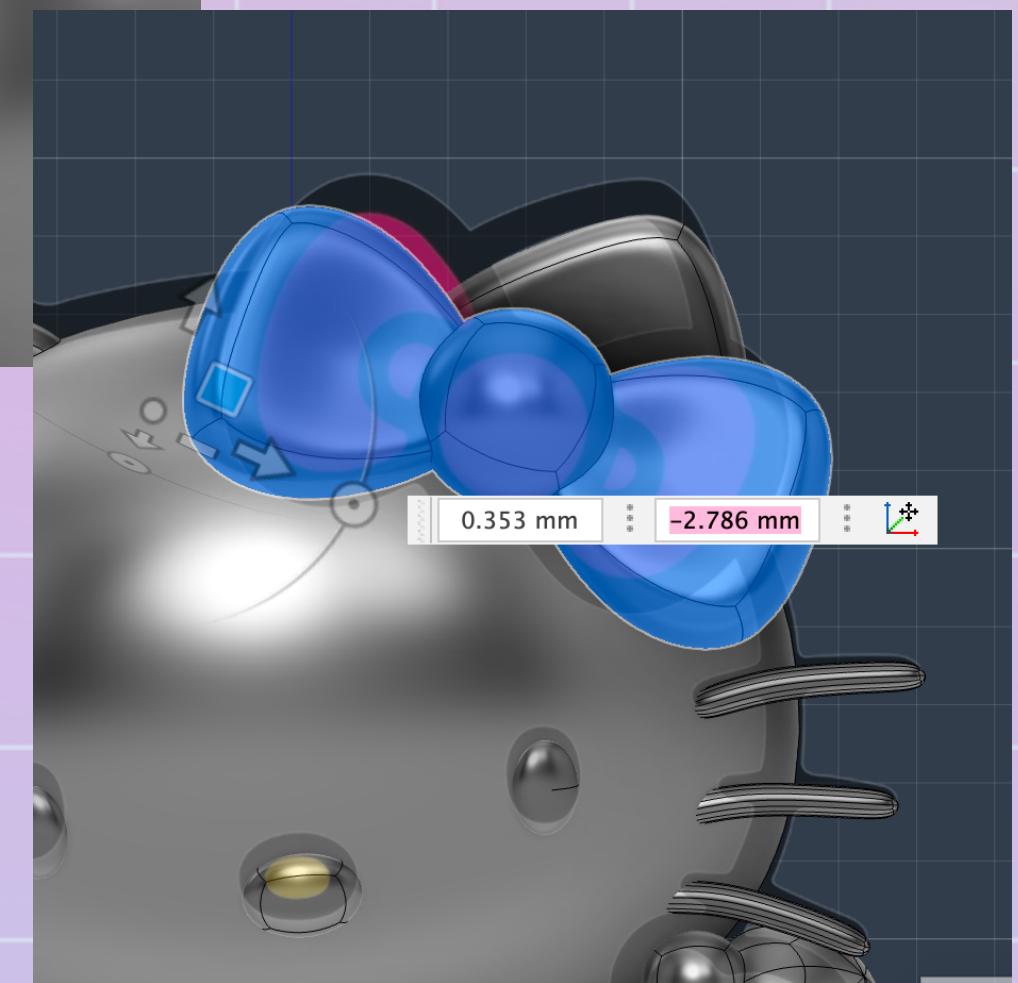
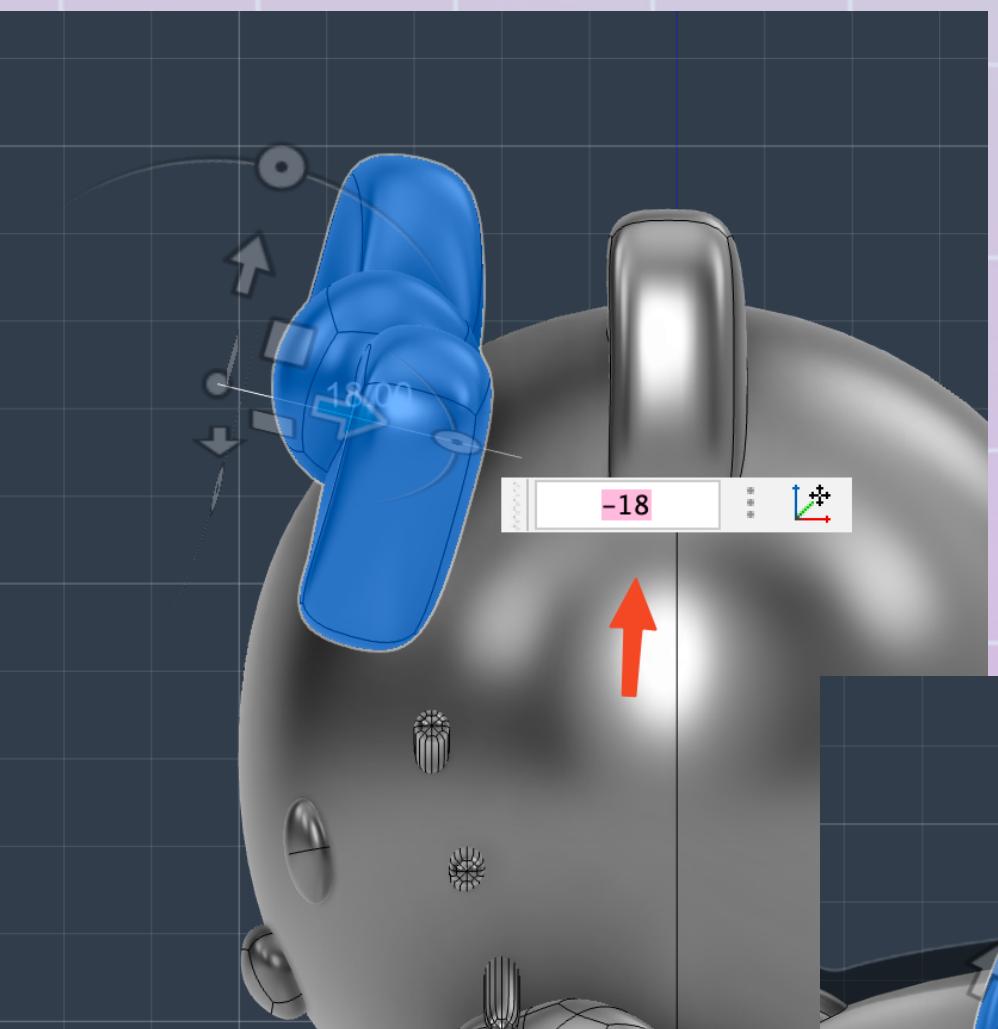
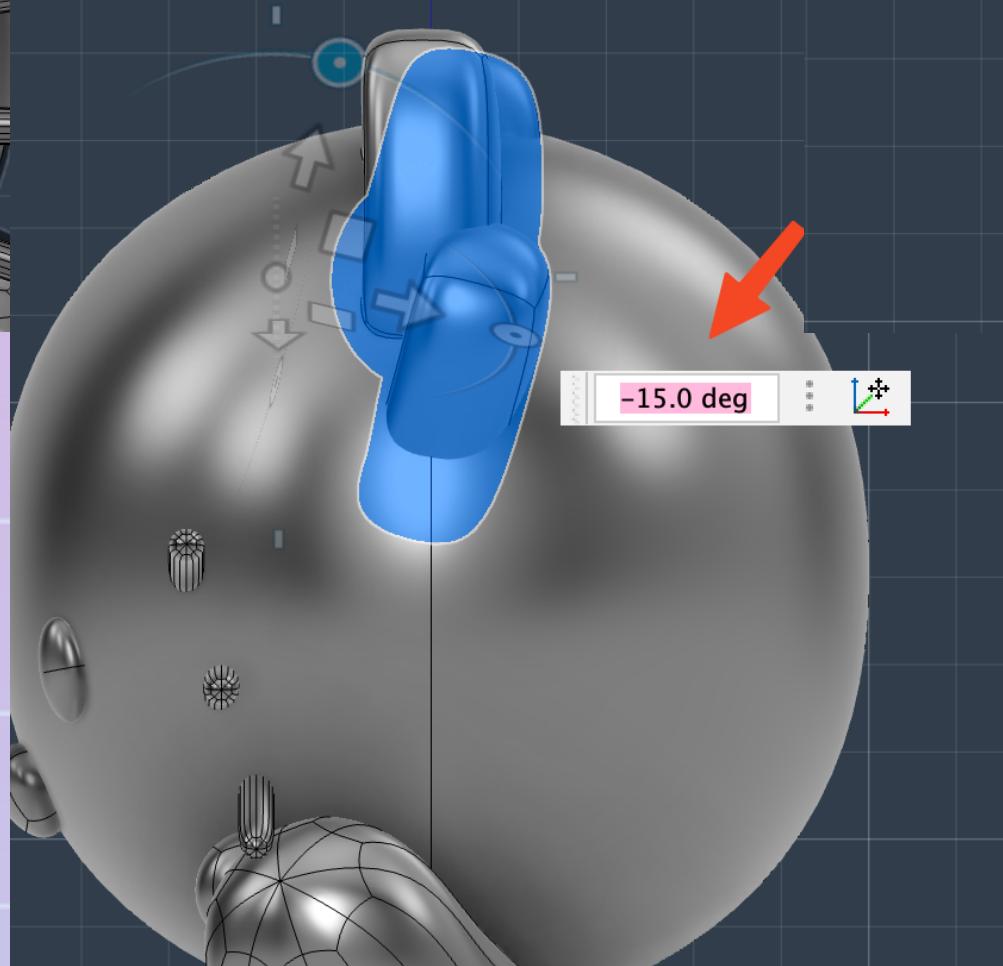
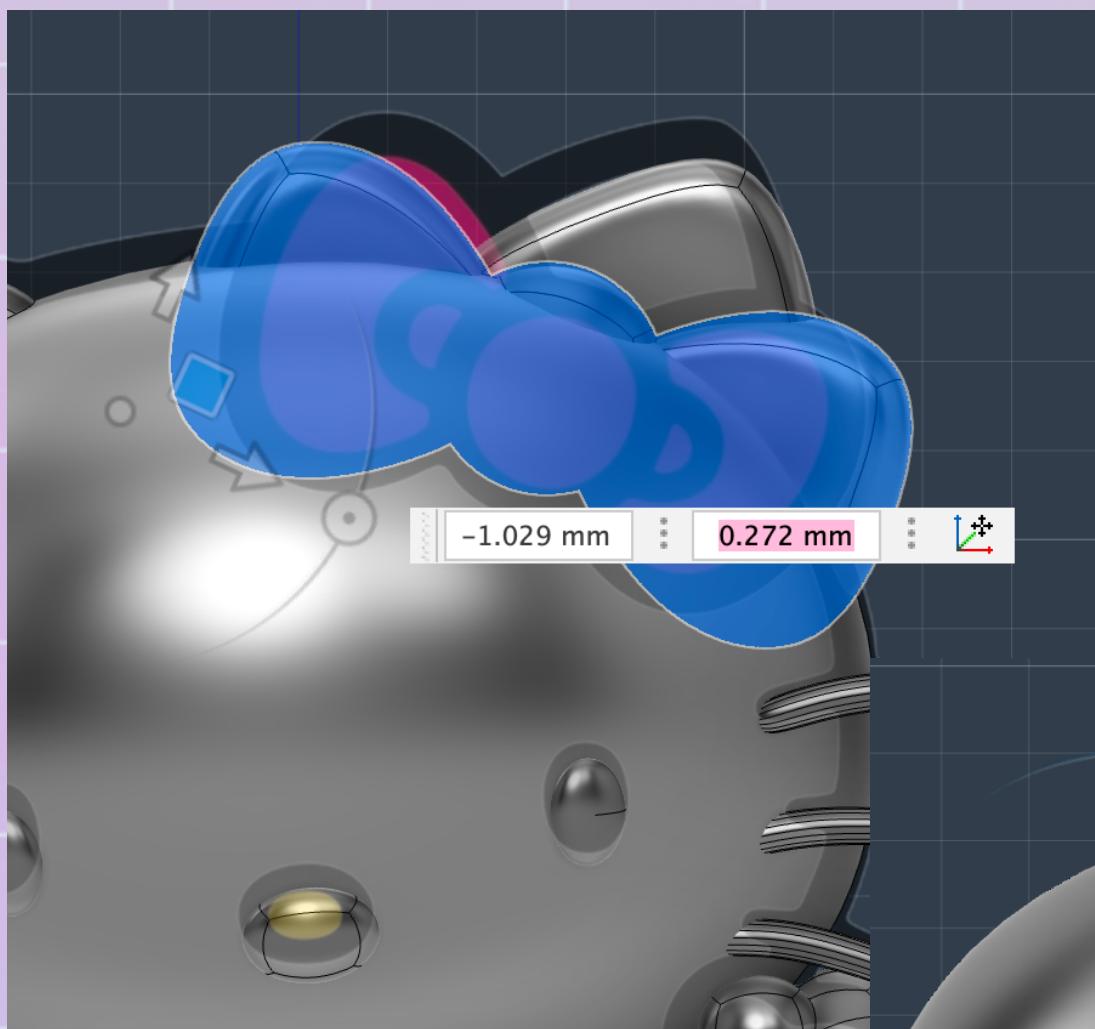
손가락과 손,  
그리고 리본을  
각각 Combine  
해줍니다.



파란색 부분을 모두 선택해 -5도 돌려주고, 위치를 조정해줍니다.

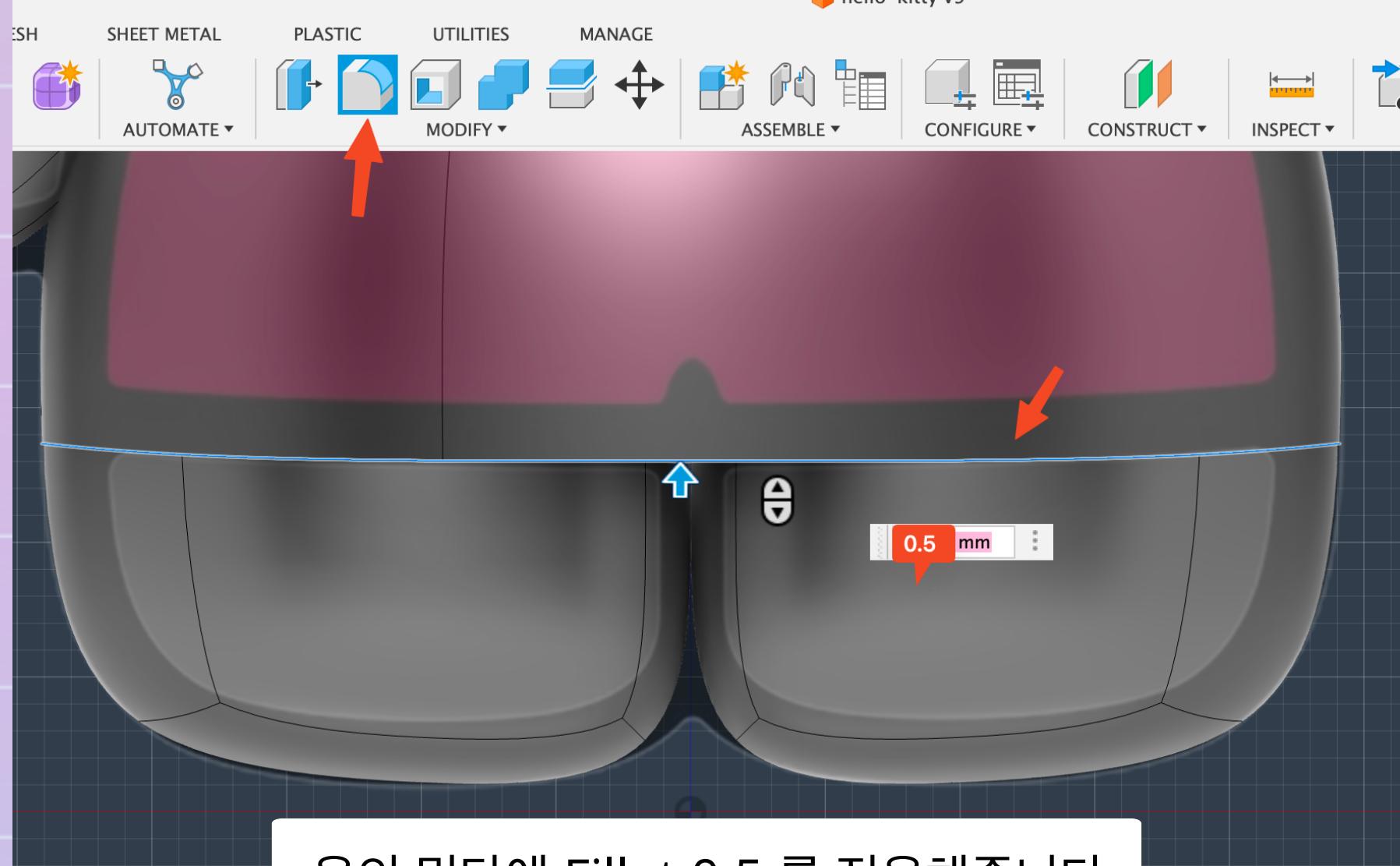


리본 위치 및  
모양 미세 조정

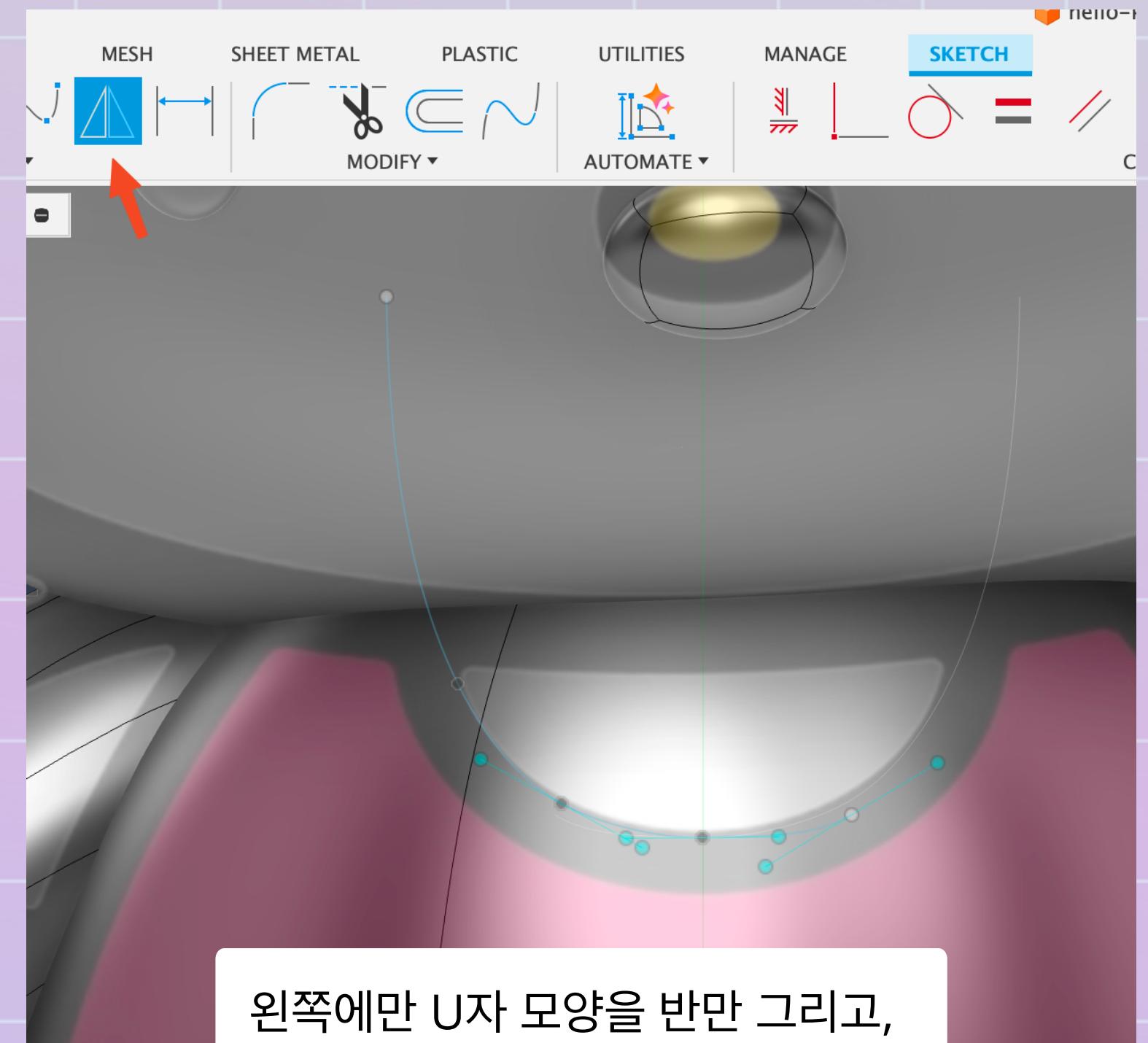




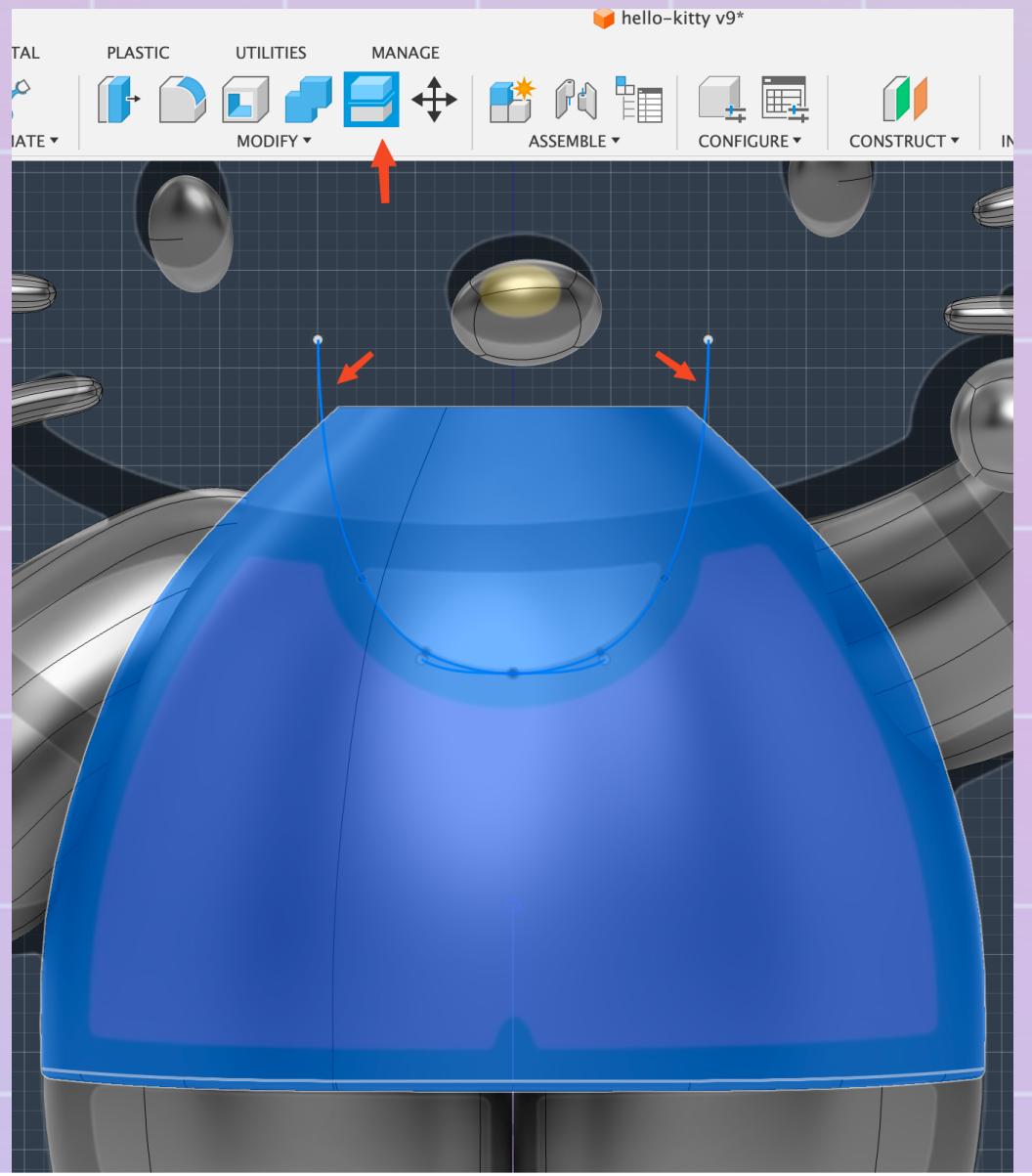
hello-kitty v9\*



온의 밑단에 Fillet 0.5 를 적용해줍니다.



왼쪽에만 U자 모양을 반만 그리고,  
Mirror 를 적용해 완벽히 대칭되는  
U자 모양을 만듭니다.



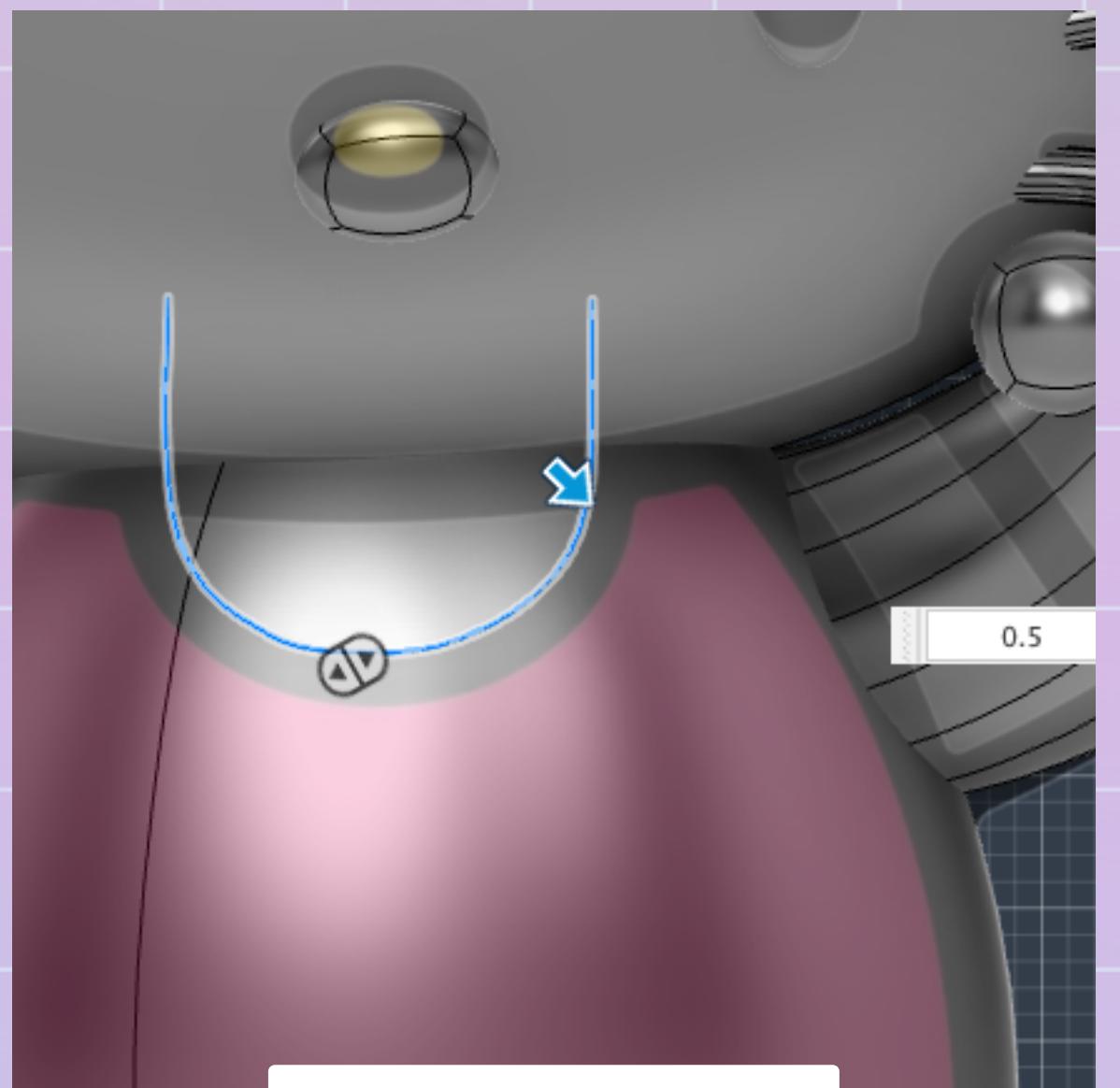
MODIFY - Split Body 를 적용해줍니다.  
이 때, Splitting Tool 로 미리 스케치해  
놓은 U 모양을 선택합니다.



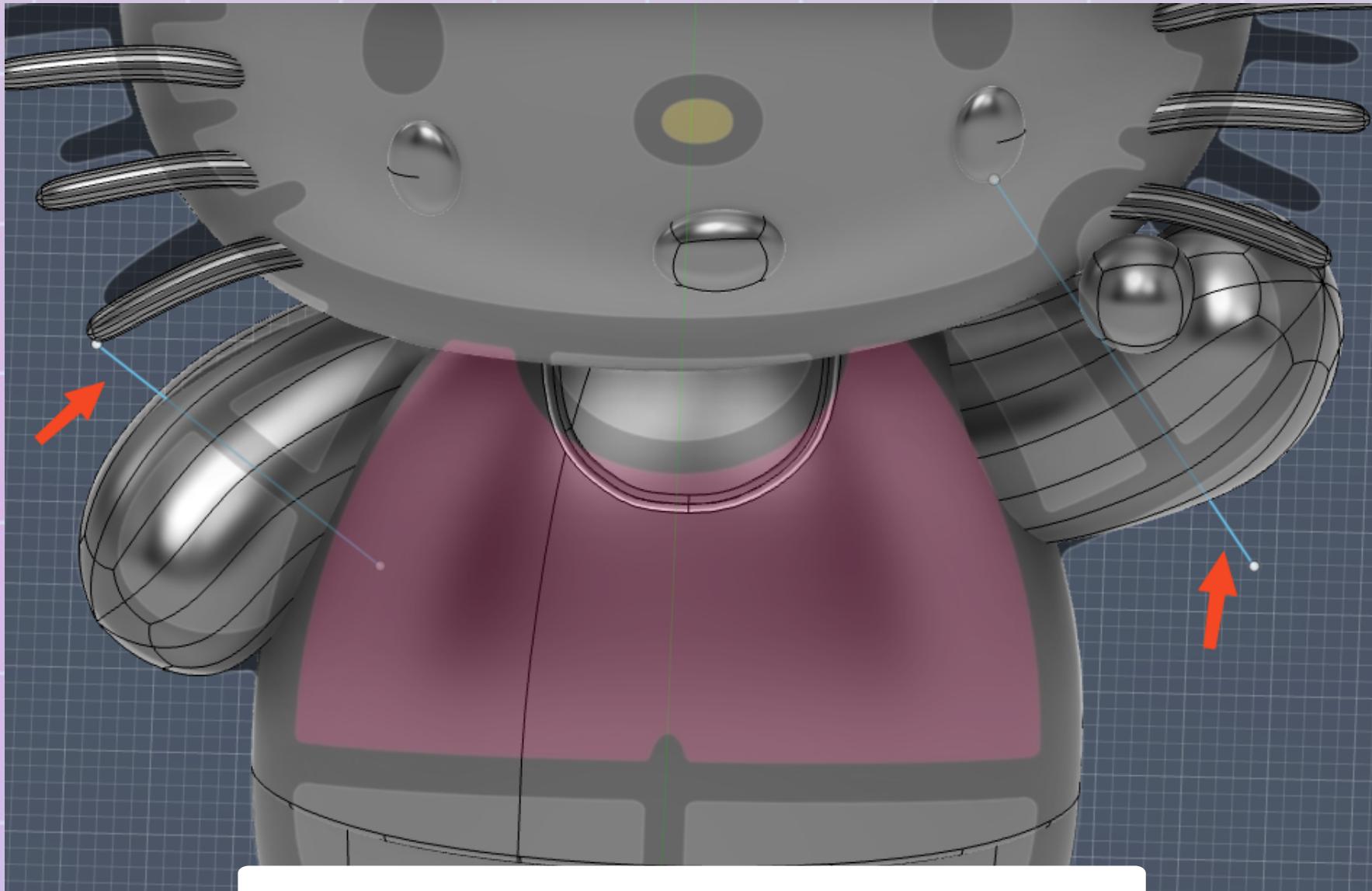
잘려진 모습



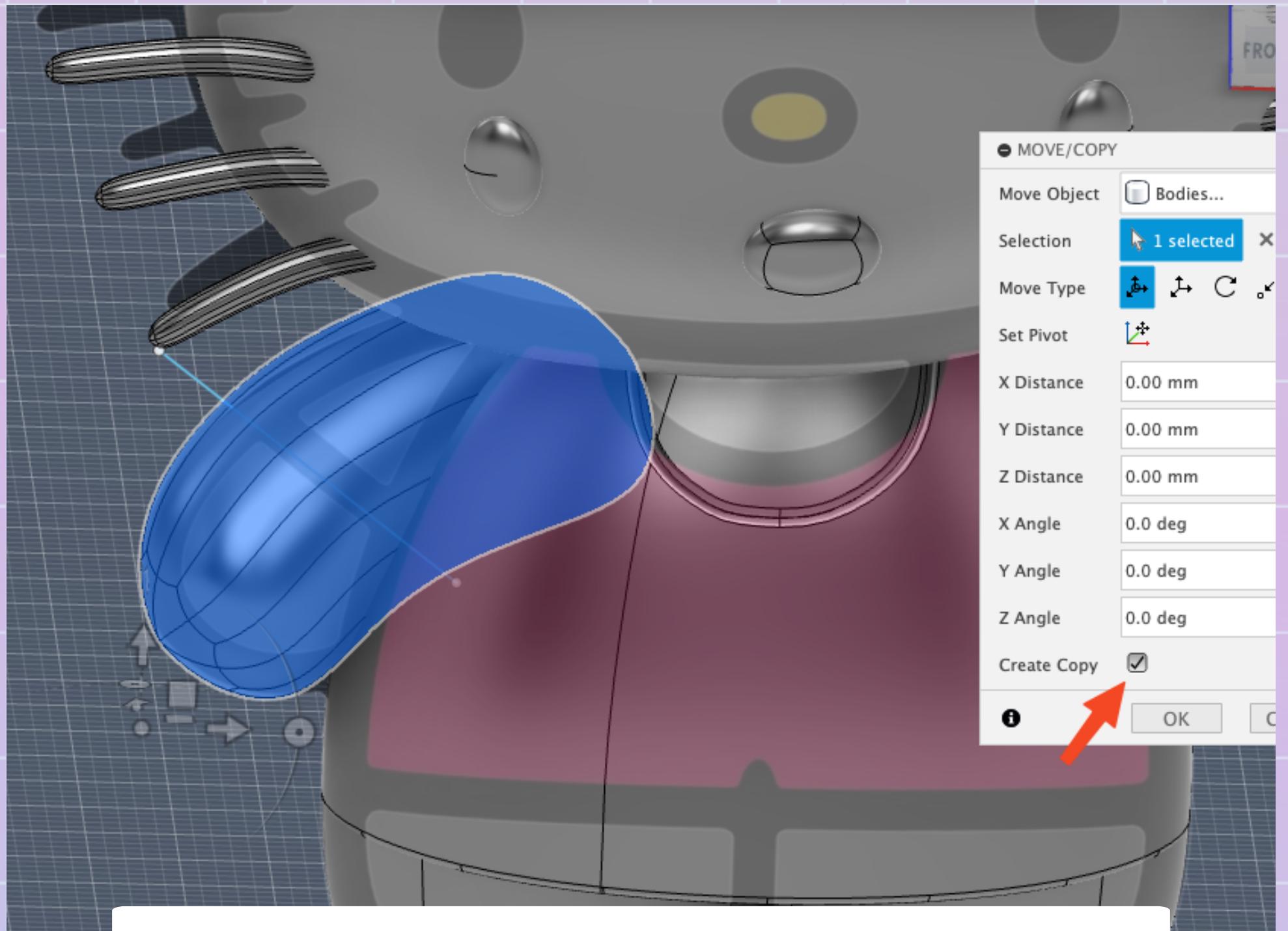
파란색 모양을 선택하고 Split Body  
를 눌러, Splitting Tool 로 Front  
면을 선택합니다.



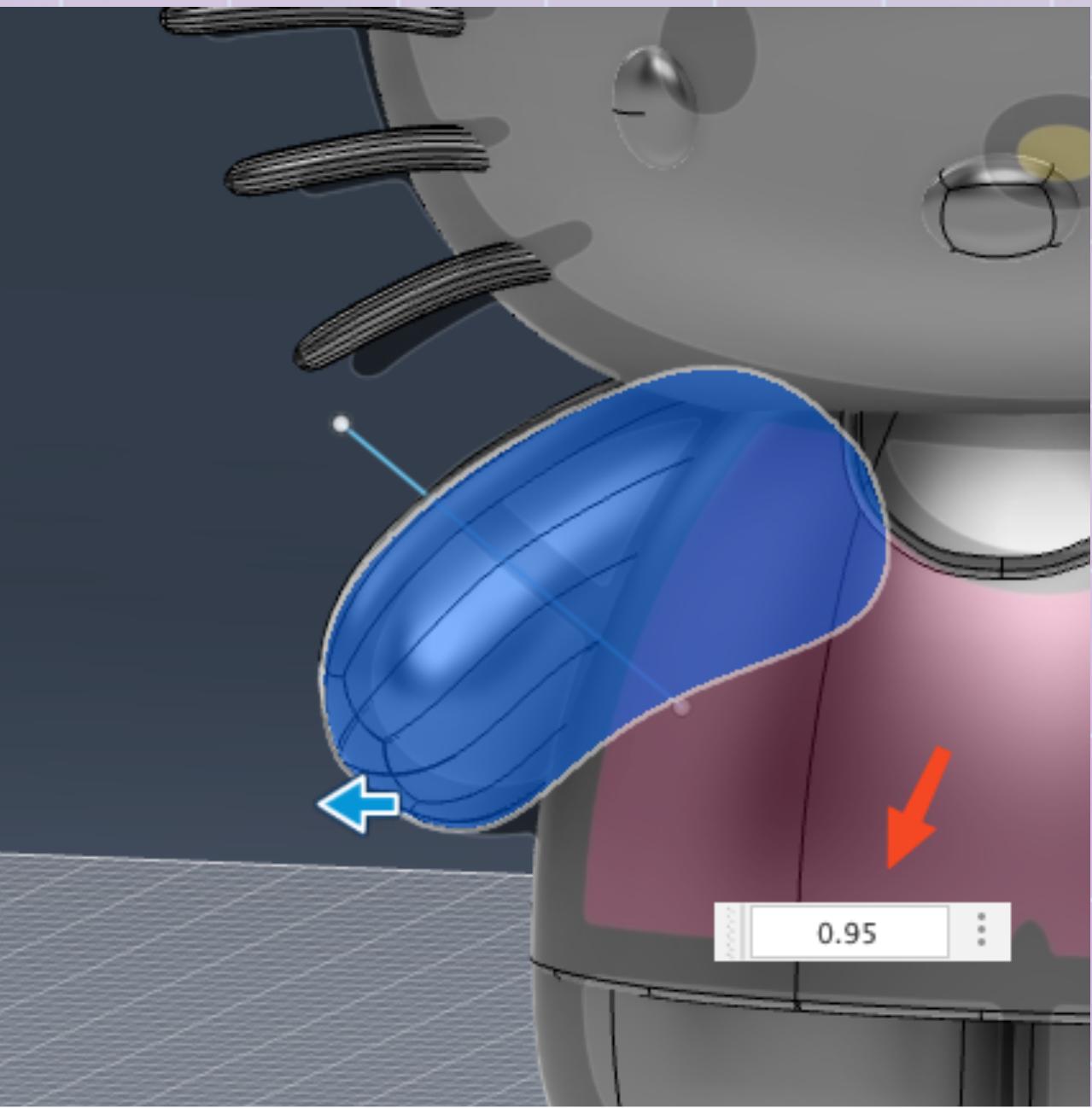
목 라인에 Fillet 0.5



왼쪽과 오른 팔 부분에 옷 부분을 만들어  
주기 위해 Line 을 각각 그려줍니다.

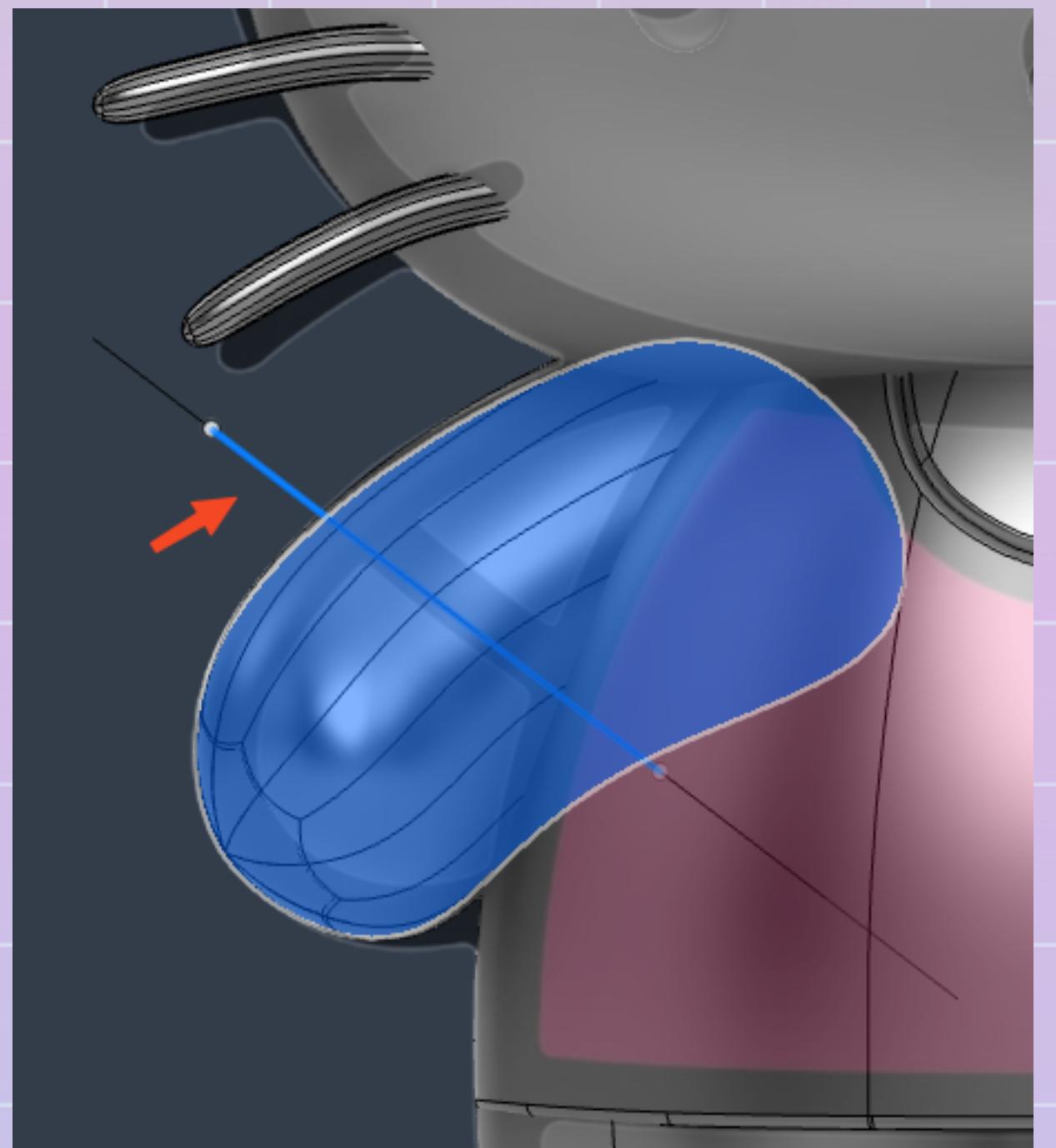


왼쪽 팔 복제하기 - MOVE/COPY: Create Copy에 체크

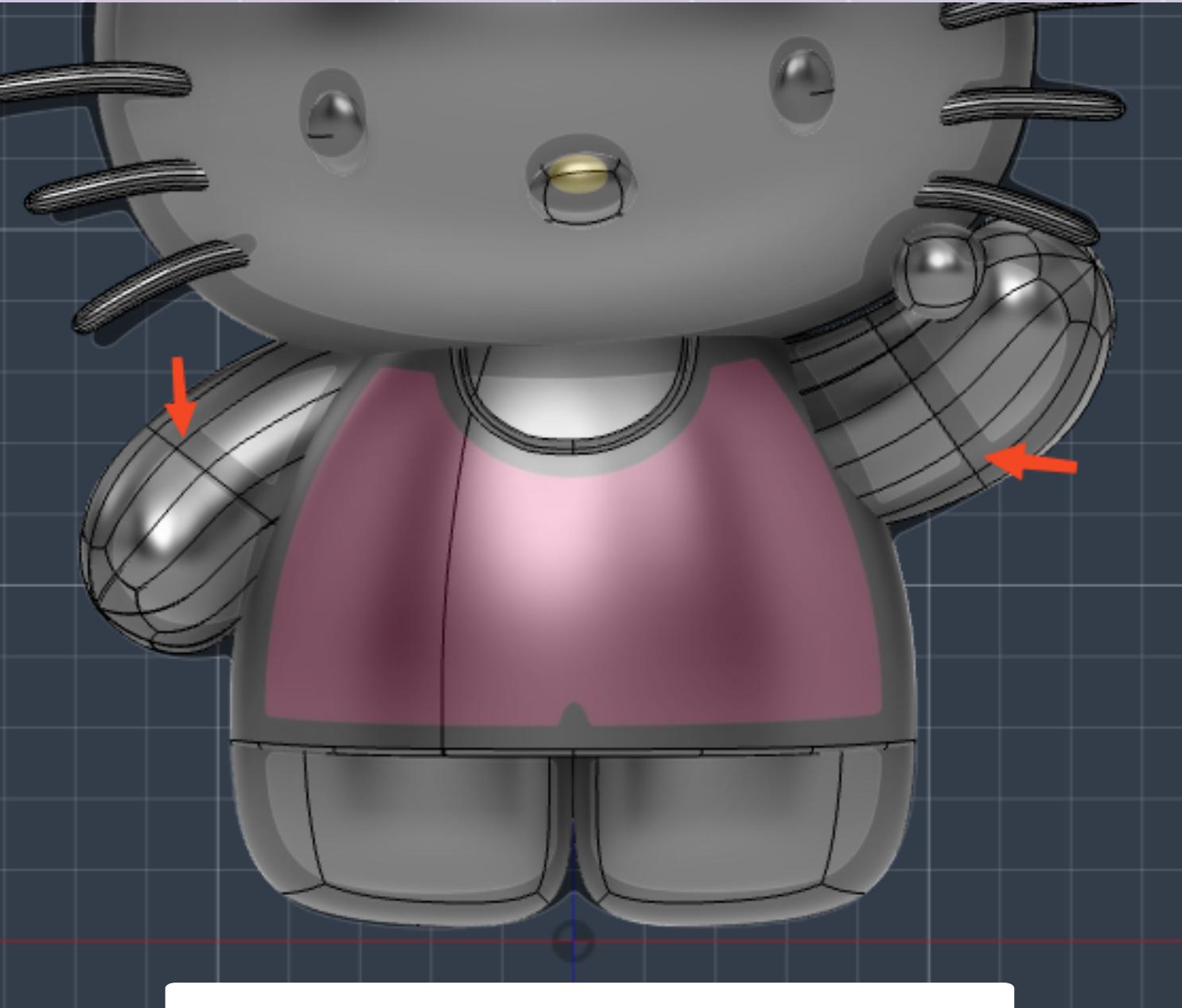


복제하기 전의 원본 팔의 Scale 을 0.95로 줄여줍니다.





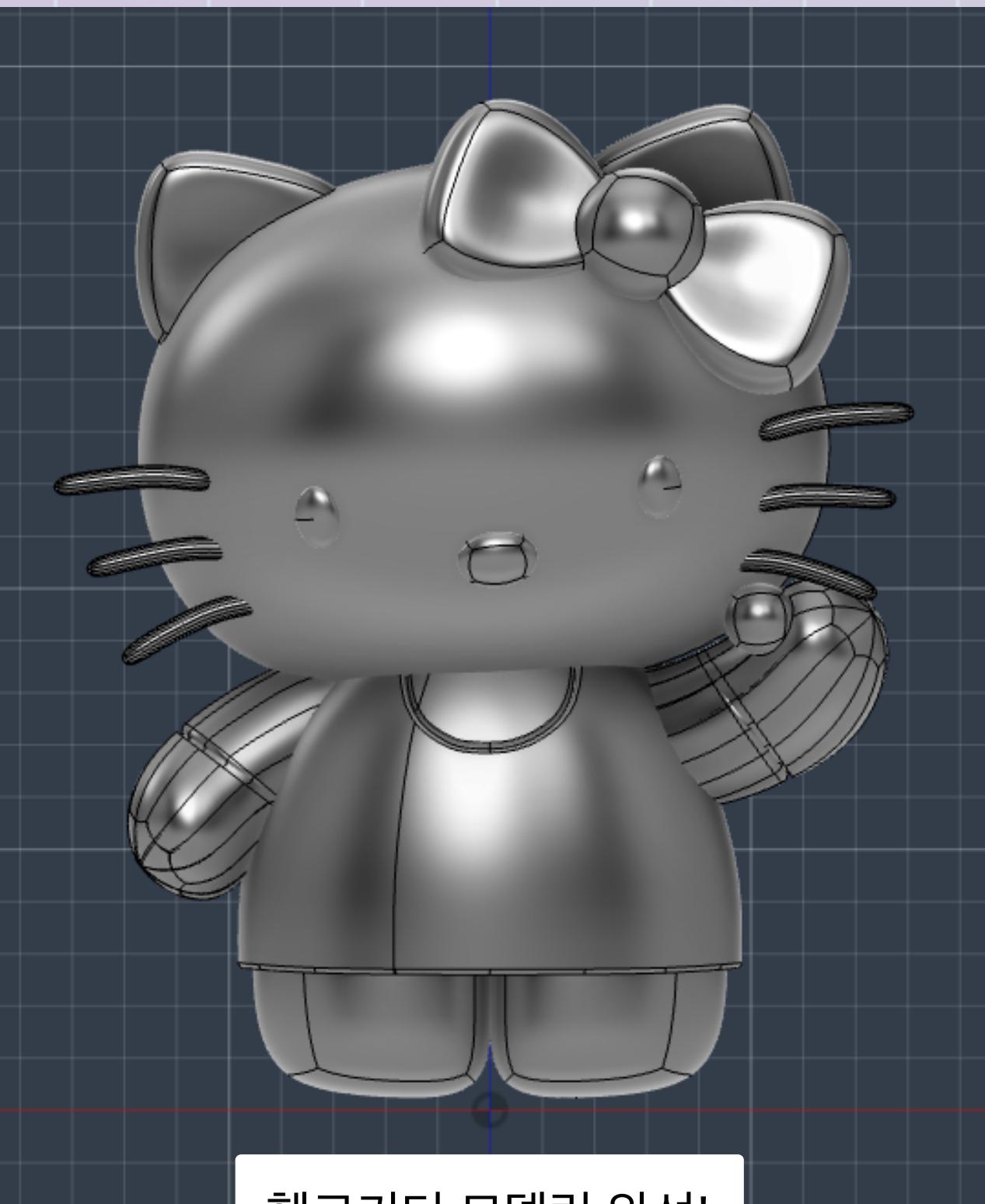
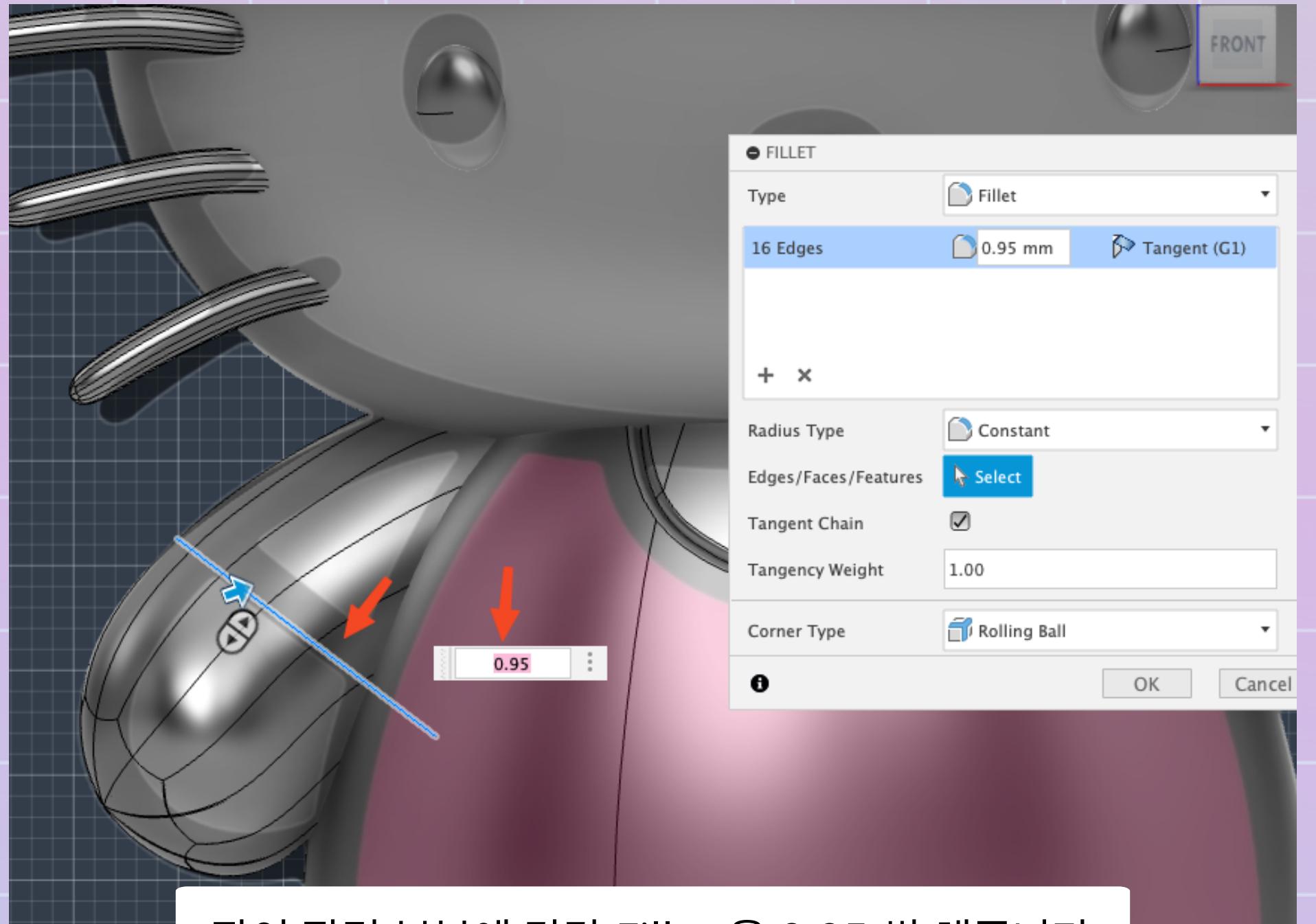
복제한 팔 (Scale = 1)에 Split Body 를 적용하여 잘라줍니다.

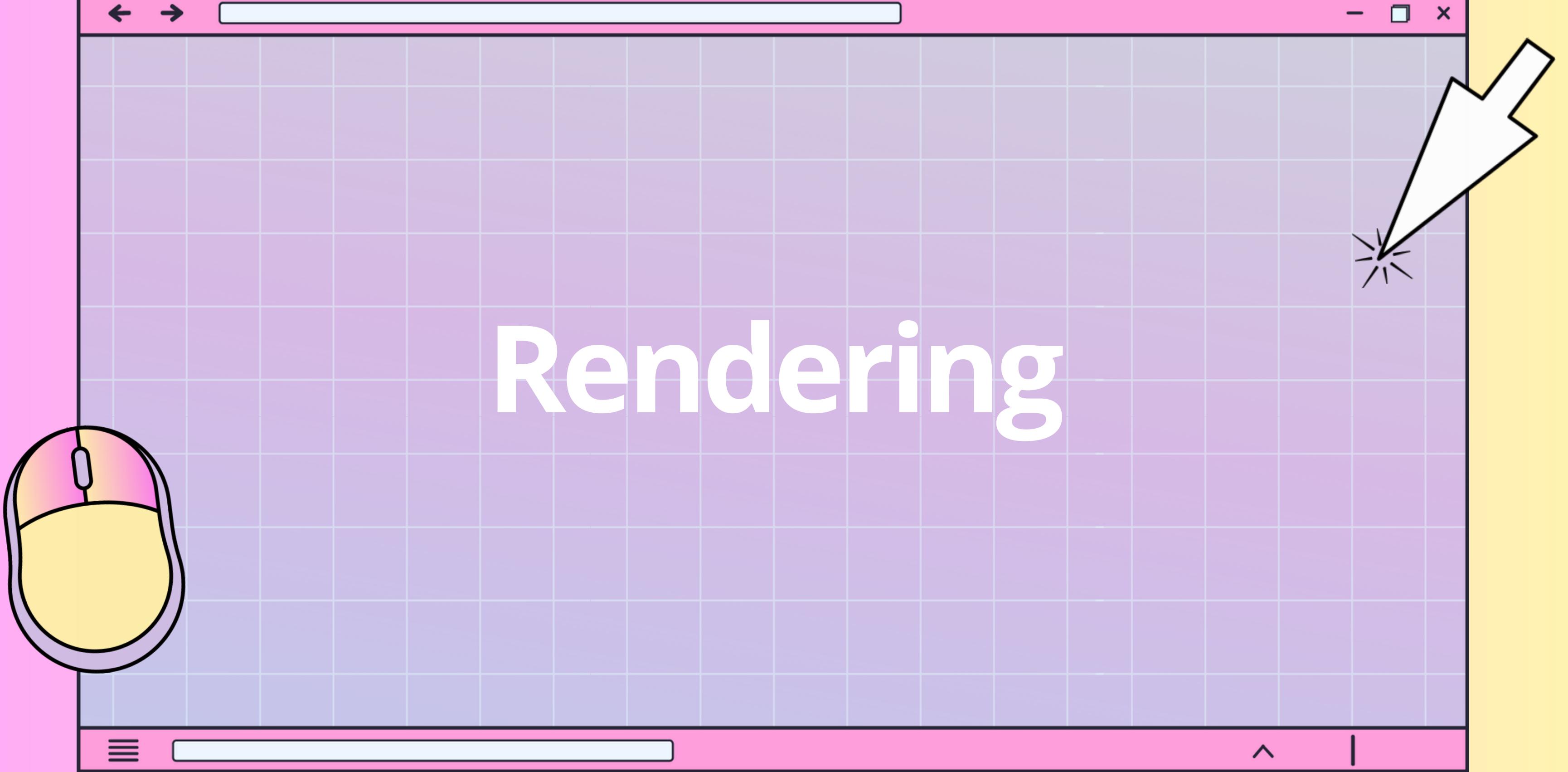


오른쪽 팔도 동일한 과정을 반복합니다.



팔이 잘린 부분에 각각 Fillet 을 0.95 씩 해줍니다.





# Rendering

