

# VORMGEVING BASIS

EERSTE generatie

**START VOLUME**

**1<sup>e</sup> GENERATIE**

**2<sup>e</sup> GENERATIE**

Richting of oriëntatie geven

# VORMGEVING BASIS

TWEEDE generatie

```
graph LR; A[START VOLUME] --> B[1e GENERATIE]; B --> C[2e GENERATIE]
```

**START VOLUME**

**1<sup>e</sup> GENERATIE**

**2<sup>e</sup> GENERATIE**

# VORMGEVING BASIS

TWEEDE generatie

*Eerste techniek :*

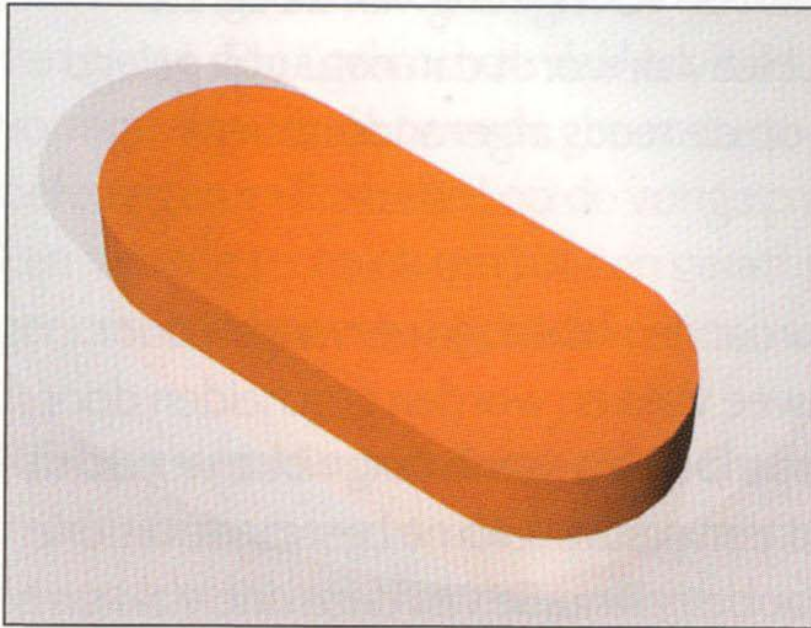
- 1. Ribben vervangen door een schuin vlak*
- 2. Toevoegen van vlakken door sneden te maken (substractief)*
- 3. Toevoegen van vlakken door volumes toe te voegen (additief)*

# VORMGEVING BASIS

TWEEDE generatie



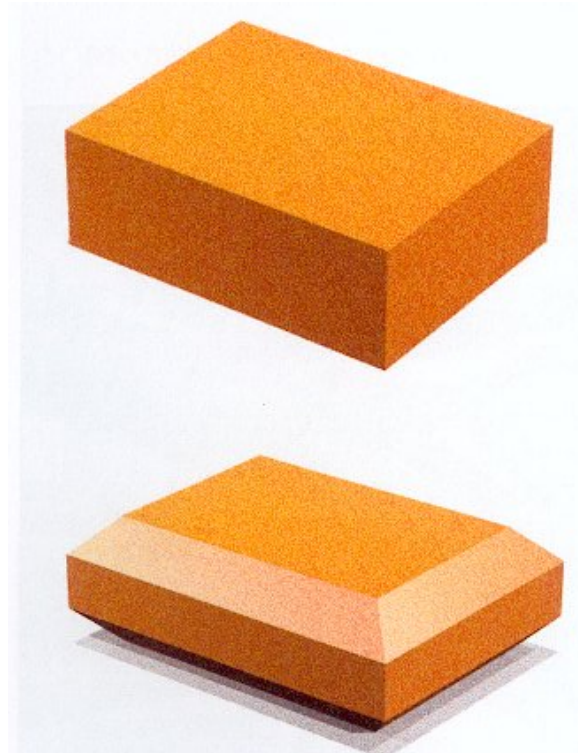
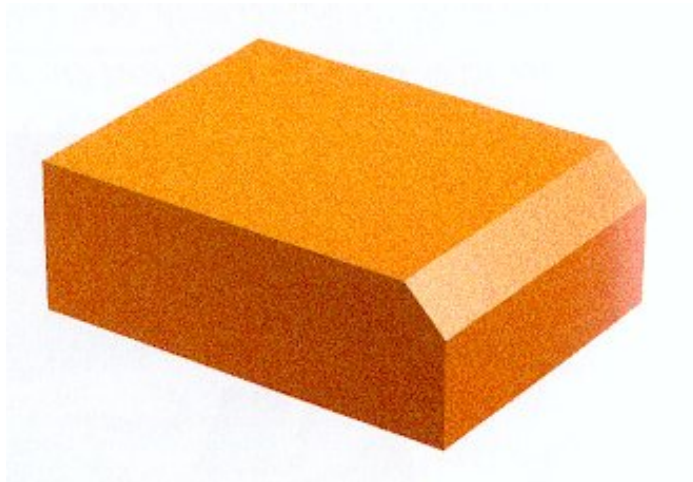
## *1. Ribben vervangen door een schuin vlak*



# VORMGEVING BASIS

TWEEDE generatie

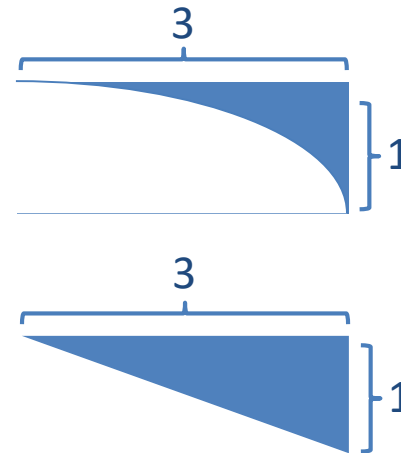
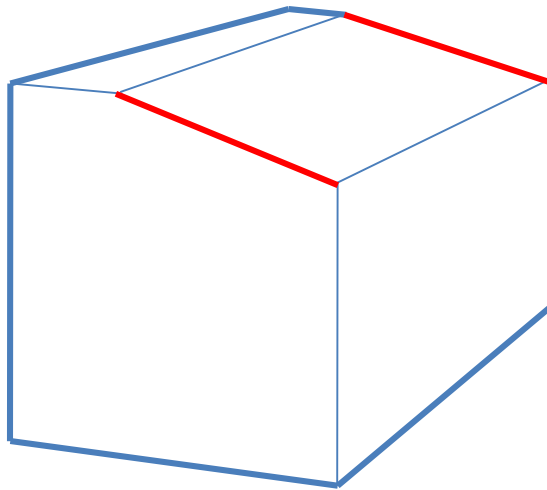
## *1. Ribben vervangen door een schuin vlak*



# VORMGEVING BASIS

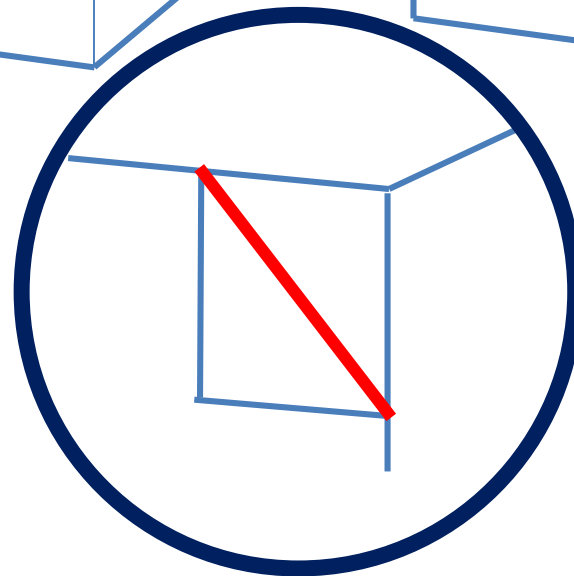
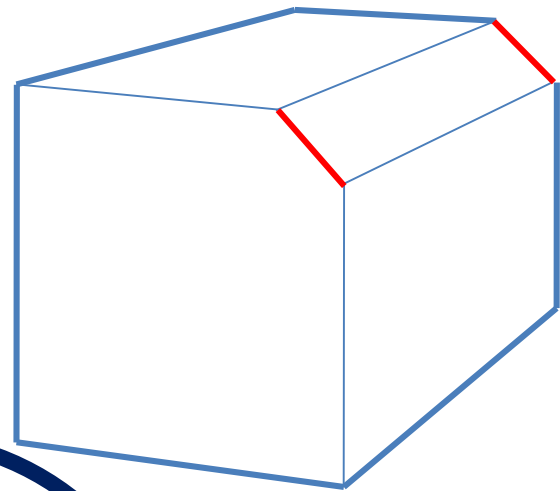
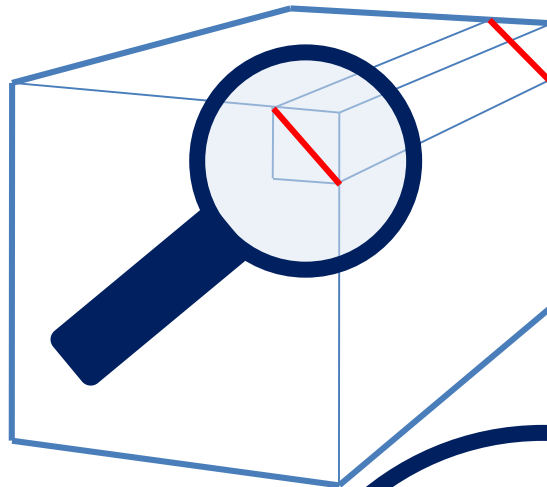
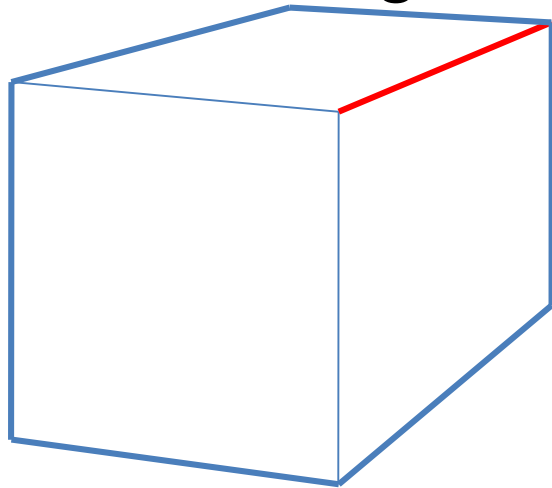
TWEEDE generatie

*Ongelijk afvlakken en afronden*



# VORMGEVING BASIS

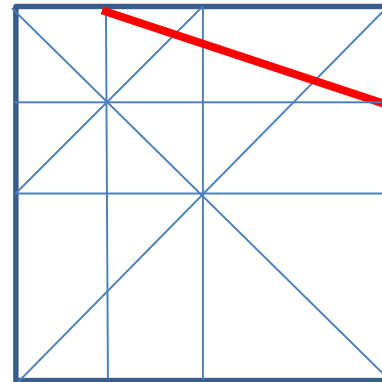
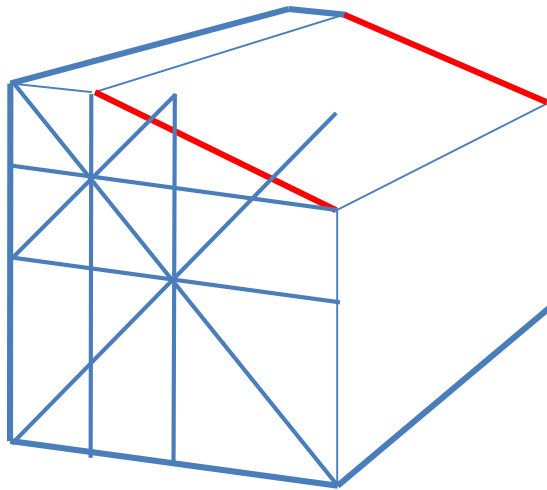
Afschuining



# VORMGEVING BASIS

TWEEDE generatie

*Ongelijk afvlakken en afronden*

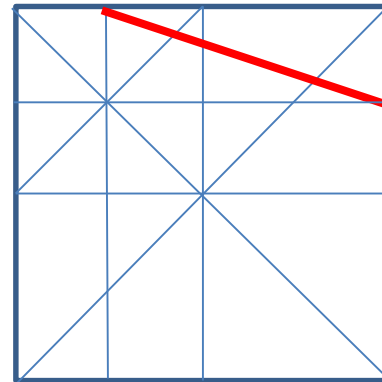
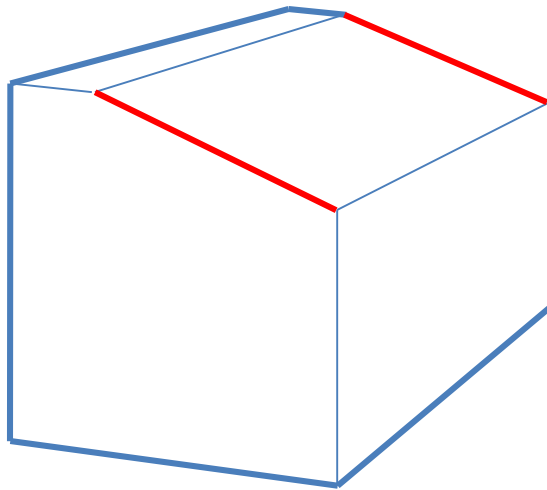




# VORMGEVING BASIS

TWEEDE generatie

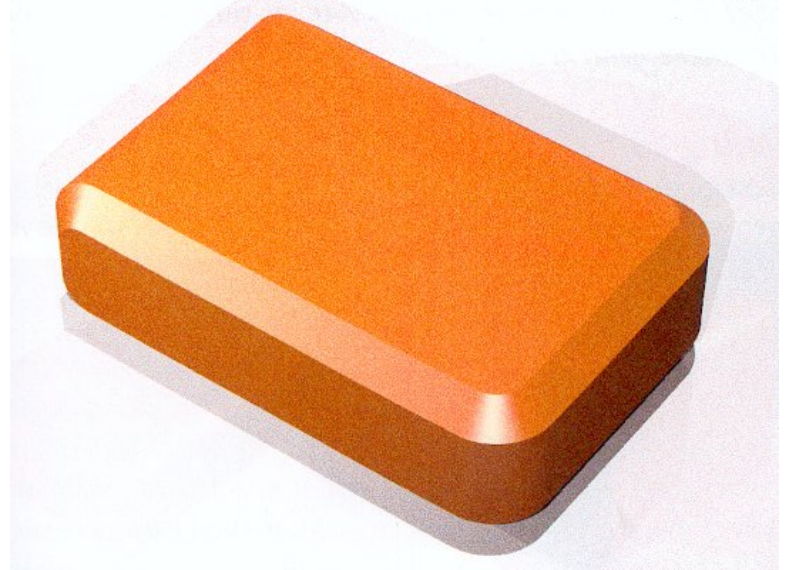
*Ongelijk afvlakken en afronden*



# VORMGEVING BASIS

TWEEDE generatie

## *1. Ribben vervangen door een schuin vlak (contour)*



Maakt startvolume optisch slanker, eleganter en minder zwaar.

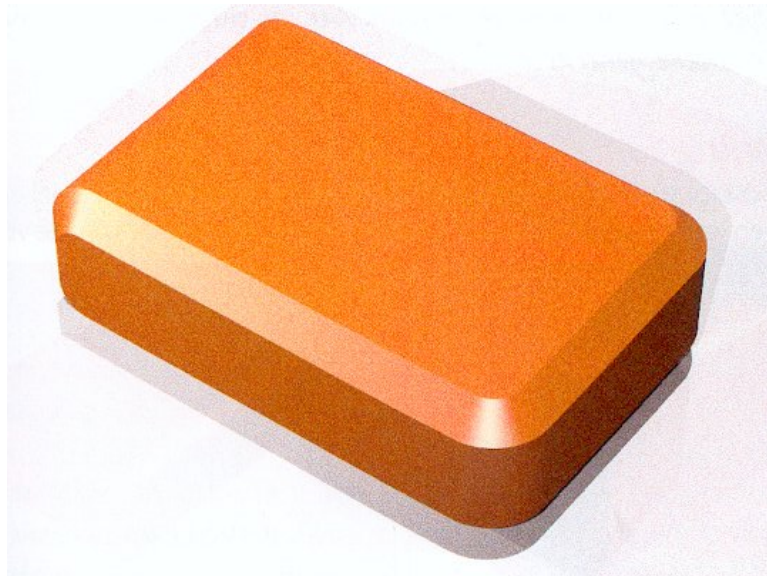




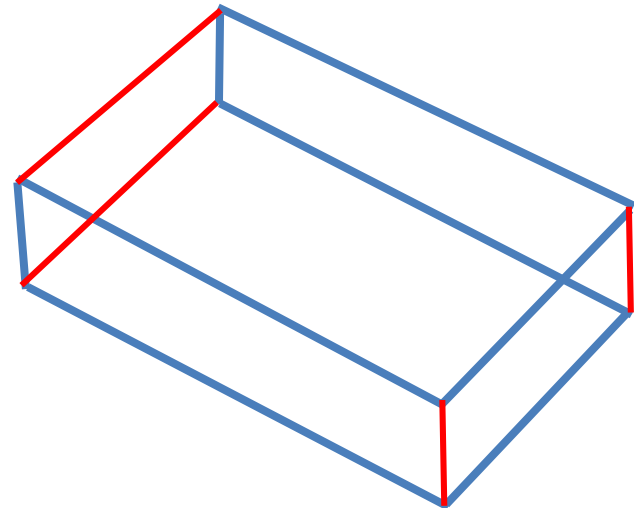
# VORMGEVING BASIS

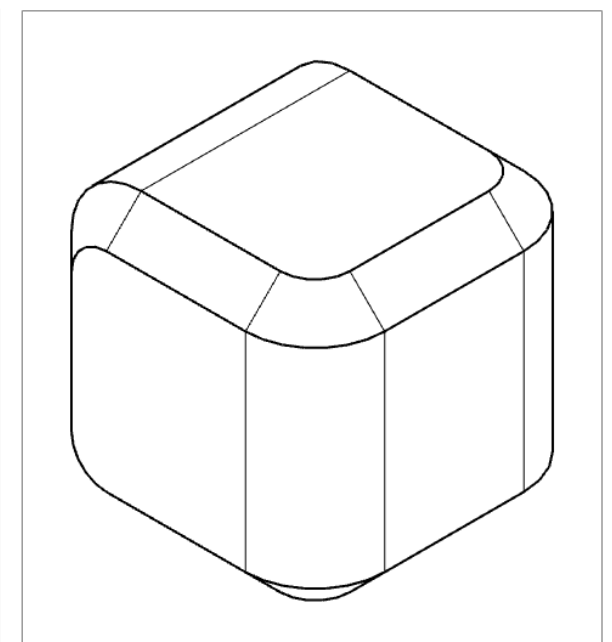
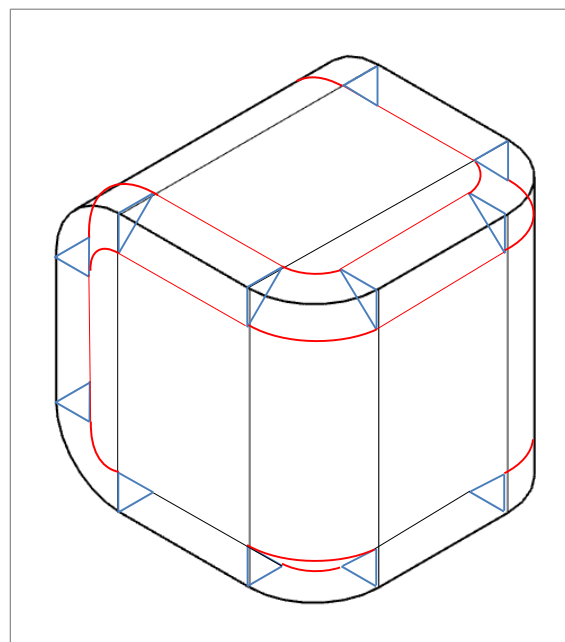
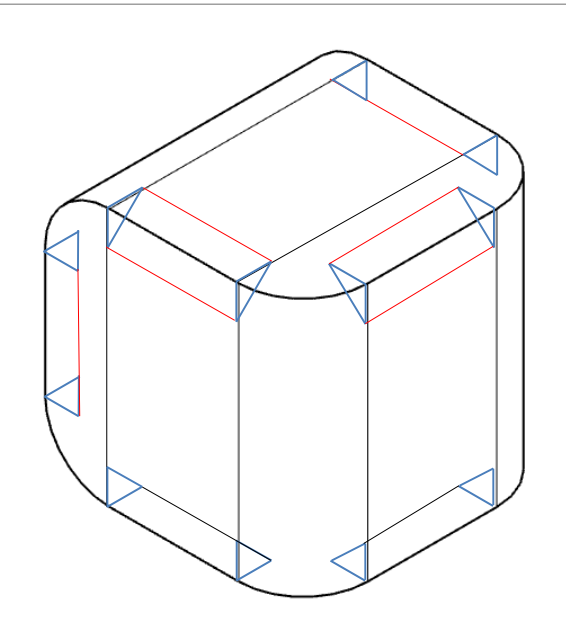
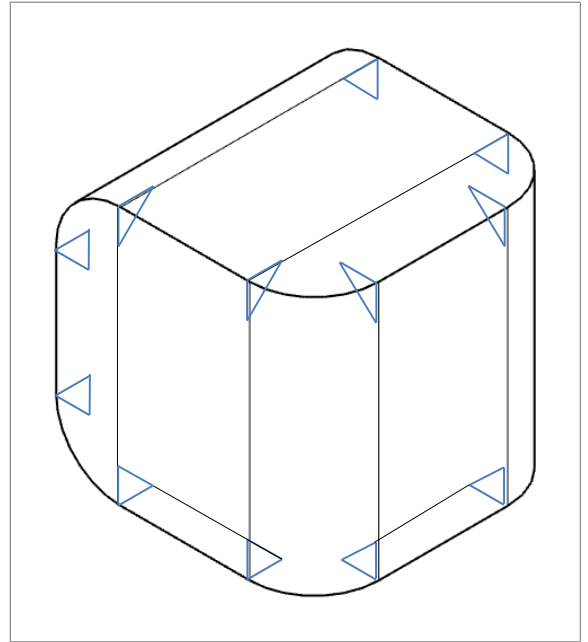
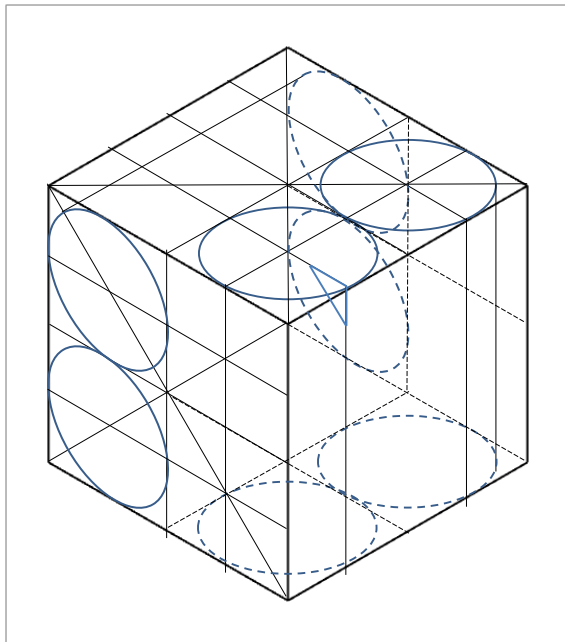
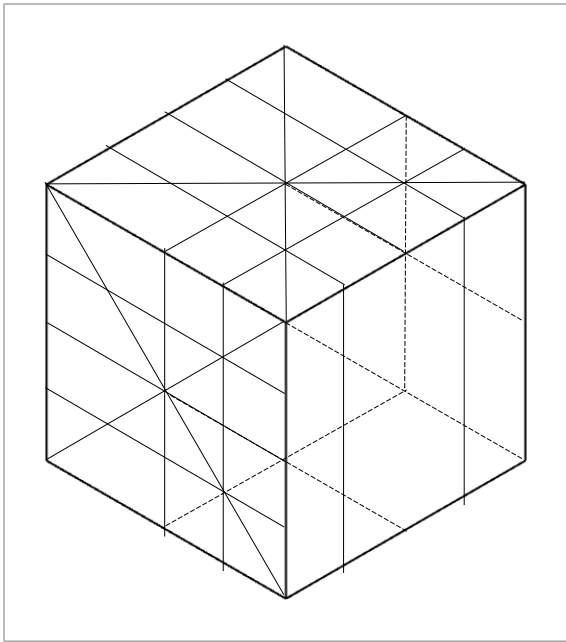
TWEEDE generatie

## 1. *Ribben vervangen door een schuin vlak*



Na afronden de rode rand  
afvlakken op blauwe contour



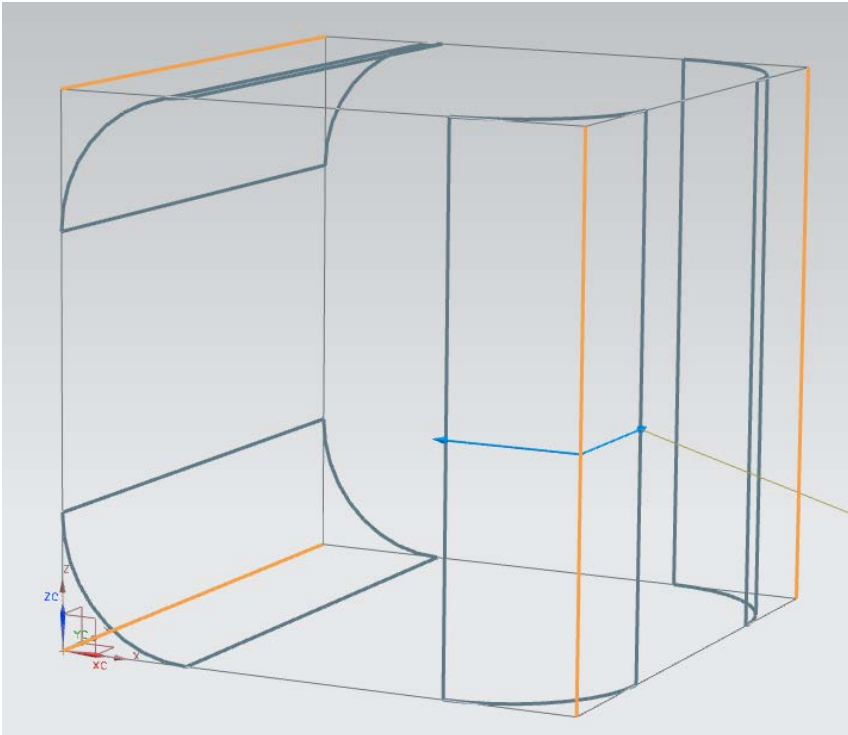


# VORMGEVING BASIS

TWEEDE generatie

## 1. Ribben vervangen door een schuin vlak

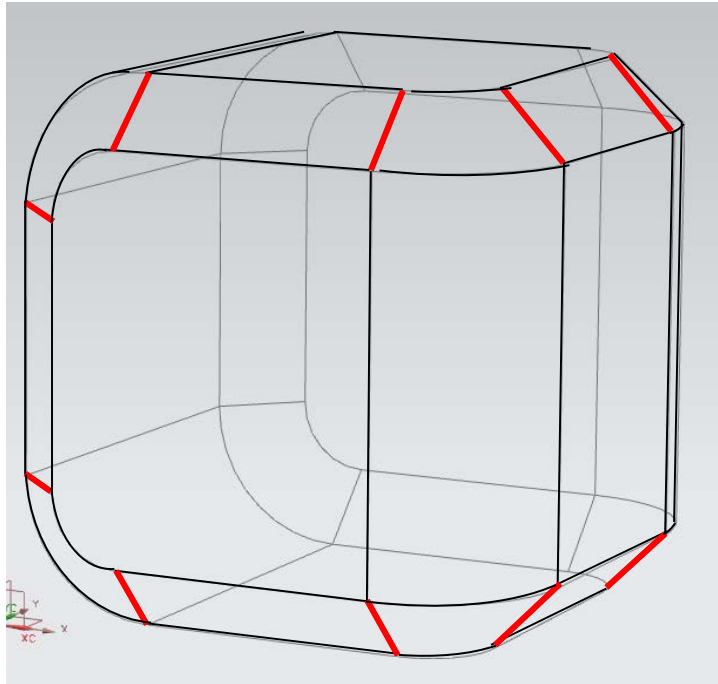
*Afronding  $\frac{1}{4}$  breedte*



# VORMGEVING BASIS

TWEEDE generatie

**1. Ribben vervangen door een schuin vlak**



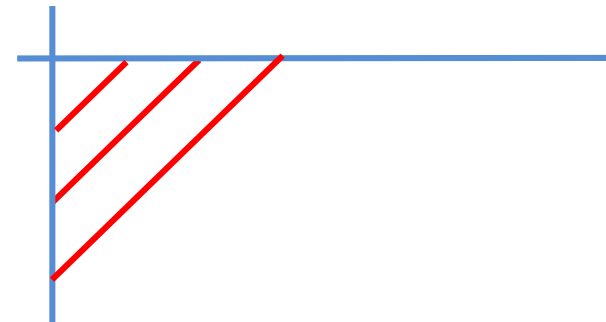
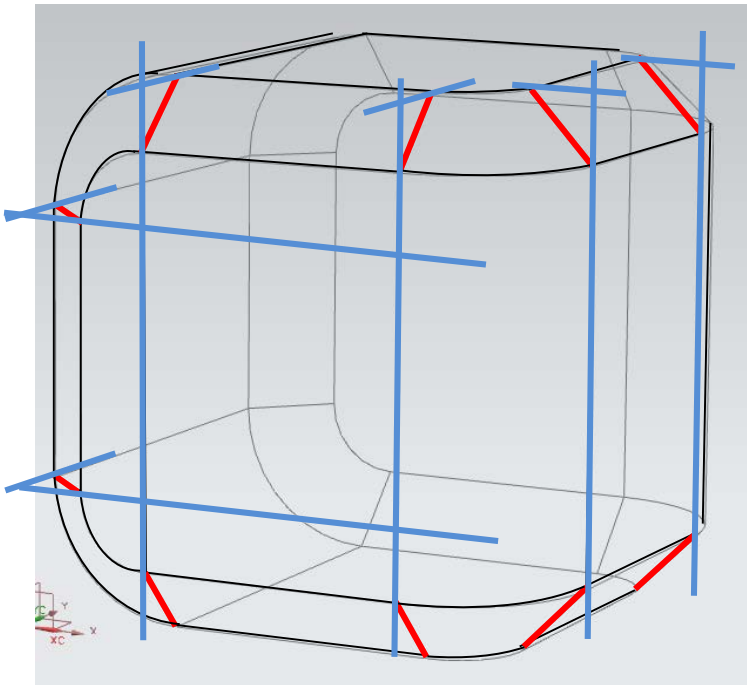
***afschuining < afronding***



# VORMGEVING BASIS

## TWEEDE generatie

### 1. Ribben vervangen door een schuin vlak

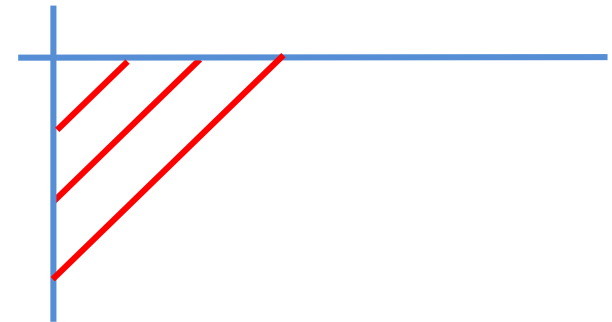
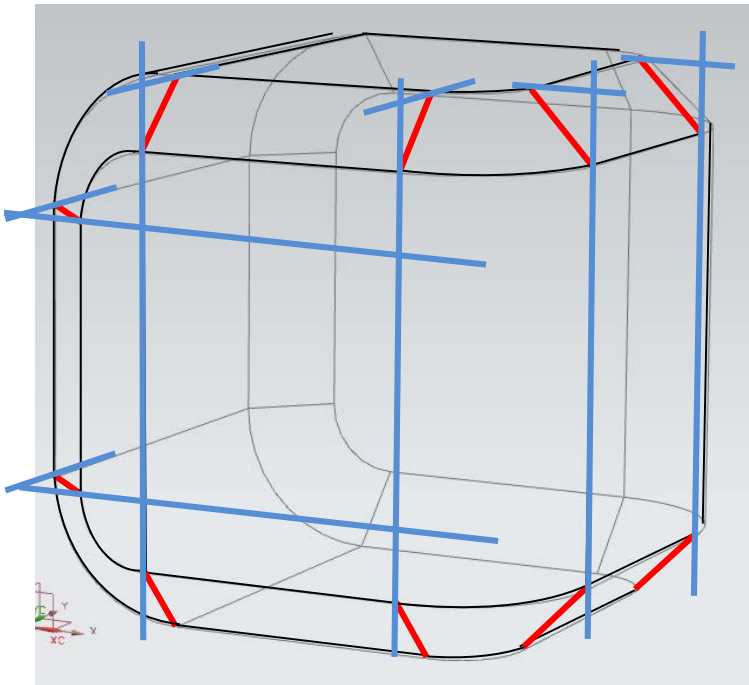


Zij-aanzicht afschuining  
Verschillende groottes van  
afschuining mogelijk.  
Neem in deze oefening de  
afschuining kleiner dan de grootte  
van de afronding

# VORMGEVING BASIS

TWEEDE generatie

## 1. Ribben vervangen door een schuin vlak

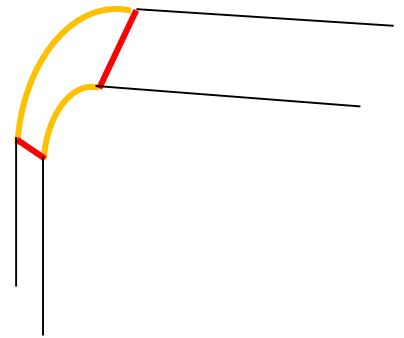
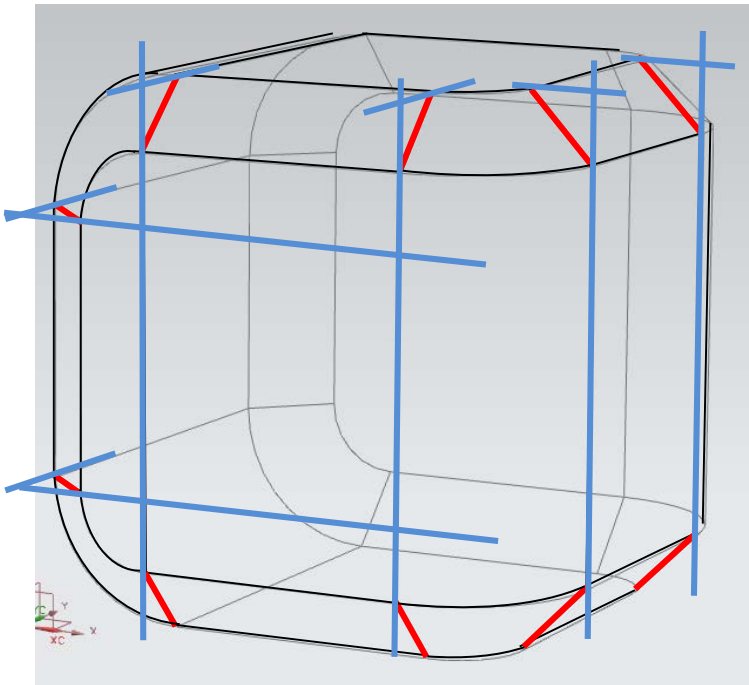


Construeer telkens de rode lijnen met behulp van de blauwe constructie lijnen, daarna kan je de afrondingen tekenen door de uiteinden van de rode lijnen te verbinden.

# VORMGEVING BASIS

TWEEDE generatie

## 1. Ribben vervangen door een schuin vlak

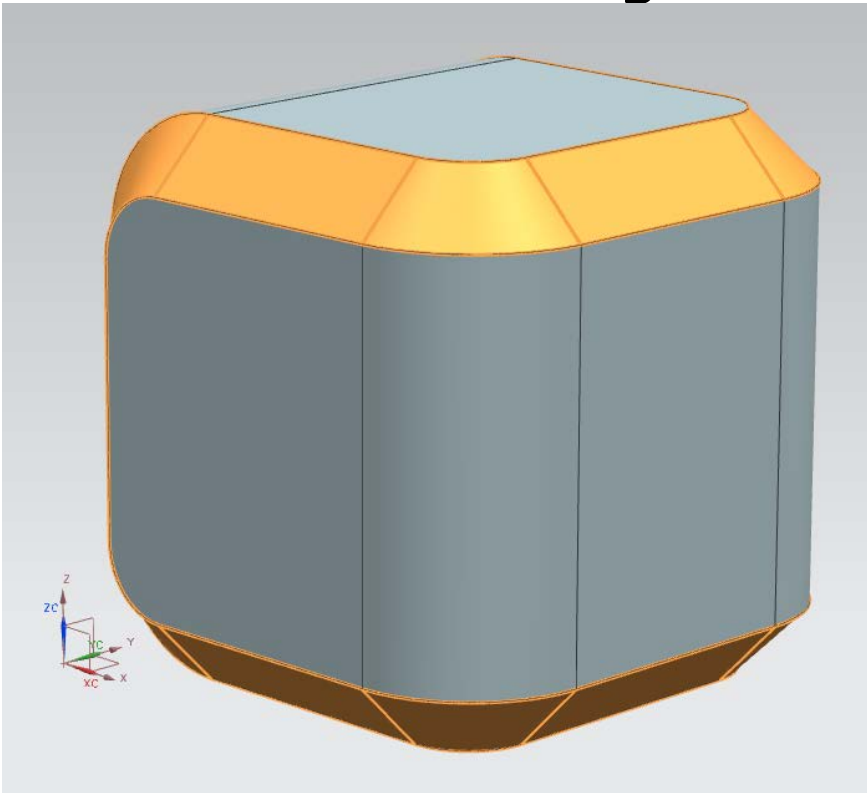


Construeer telkens de rode lijnen met behulp van de blauwe constructie lijnen, daarna kan je de afrondingen (oranje) tekenen door de uiteinden van de rode lijnen te verbinden.

# VORMGEVING BASIS

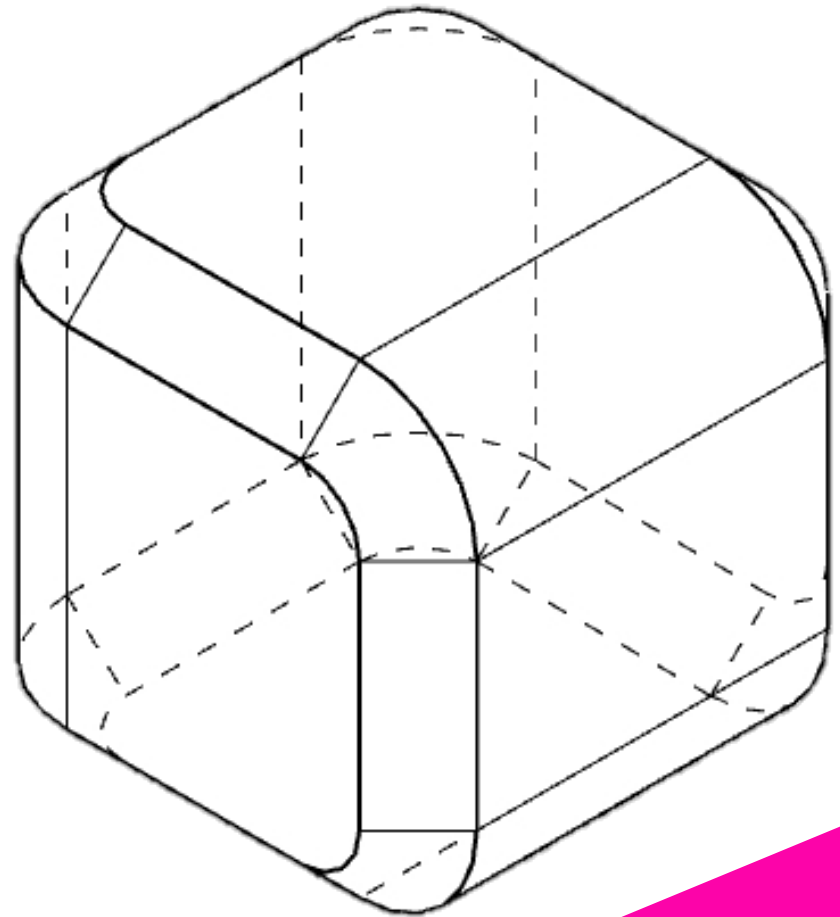
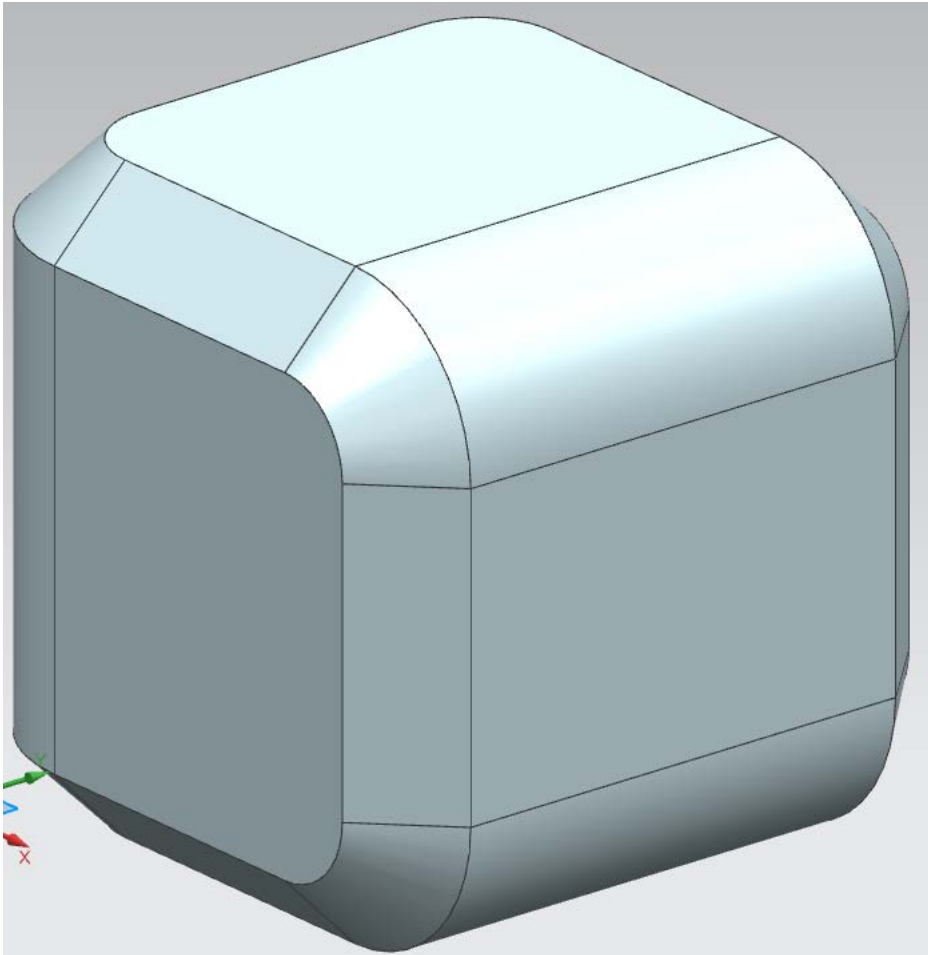
TWEEDE generatie

## *1. Ribben vervangen door een schuin vlak*



# VORMGEVING BASIS

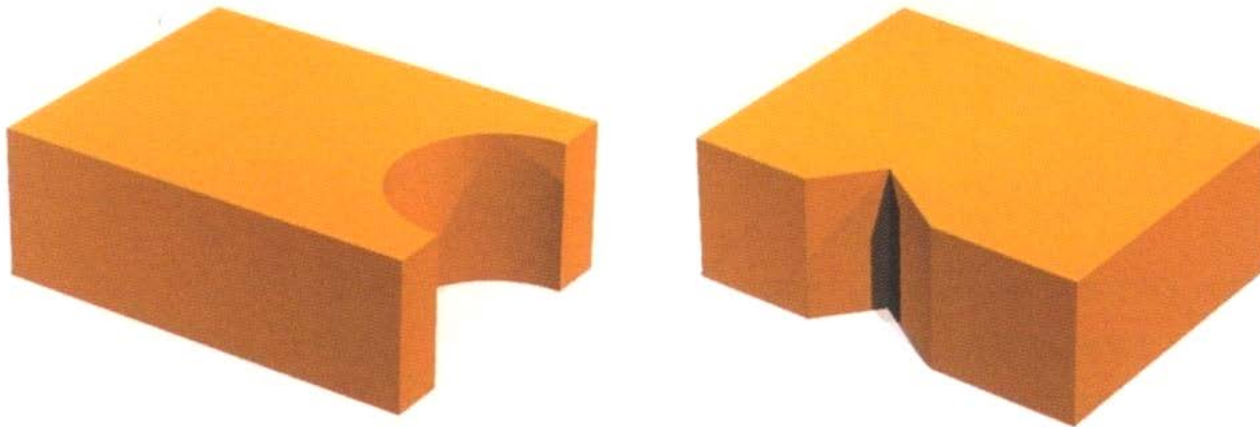
TWEEDE generatie



# VORMGEVING BASIS

TWEEDE generatie

***2. Toevoegen van vlakken door sneden te maken  
(subtractief)***



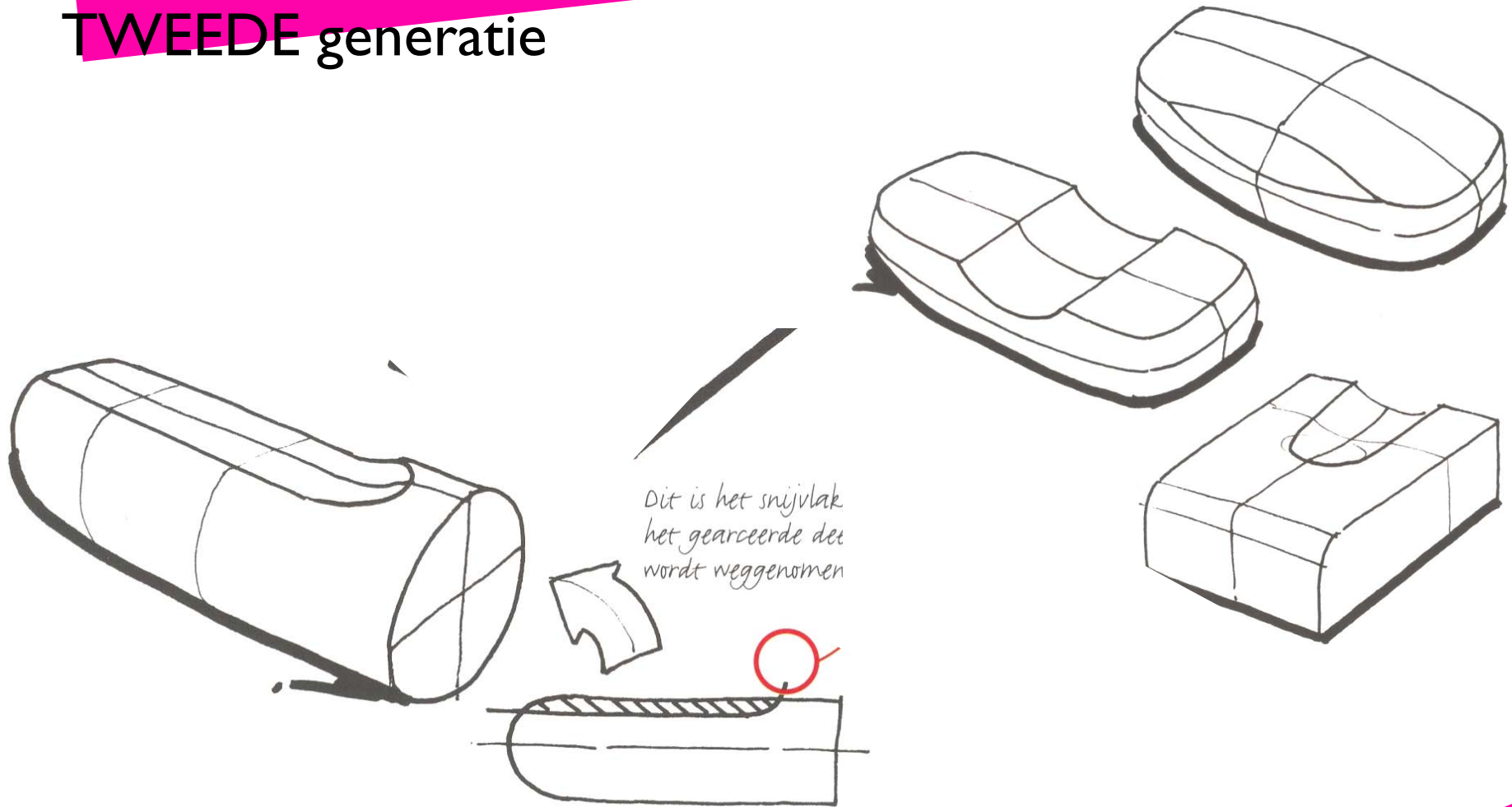
# VORMGEVING BASIS

TWEEDE generatie



# VORMGEVING BASIS

TWEEDE generatie



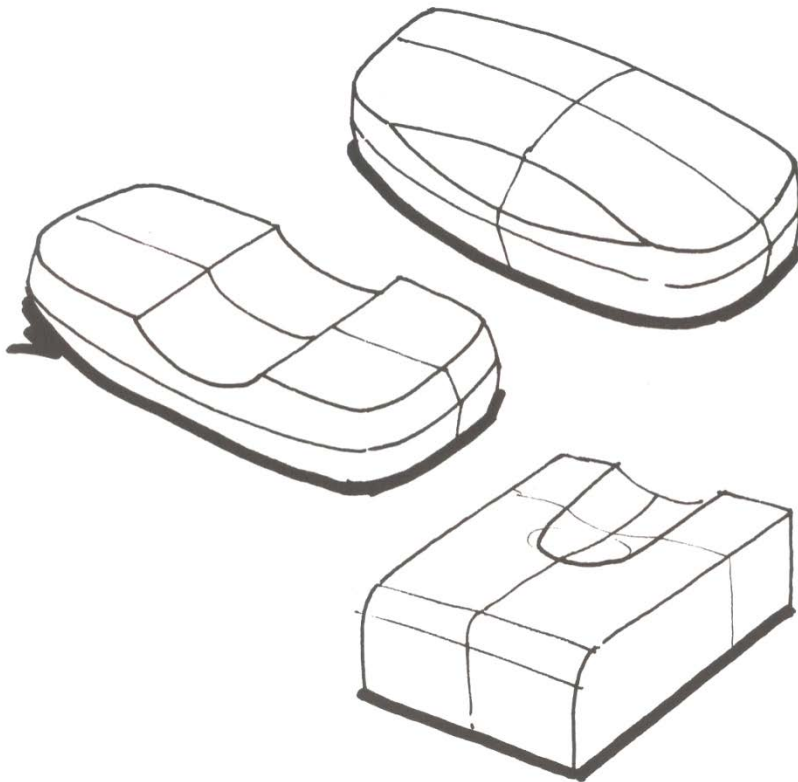


# VORMGEVING BASIS

TWEEDE generatie

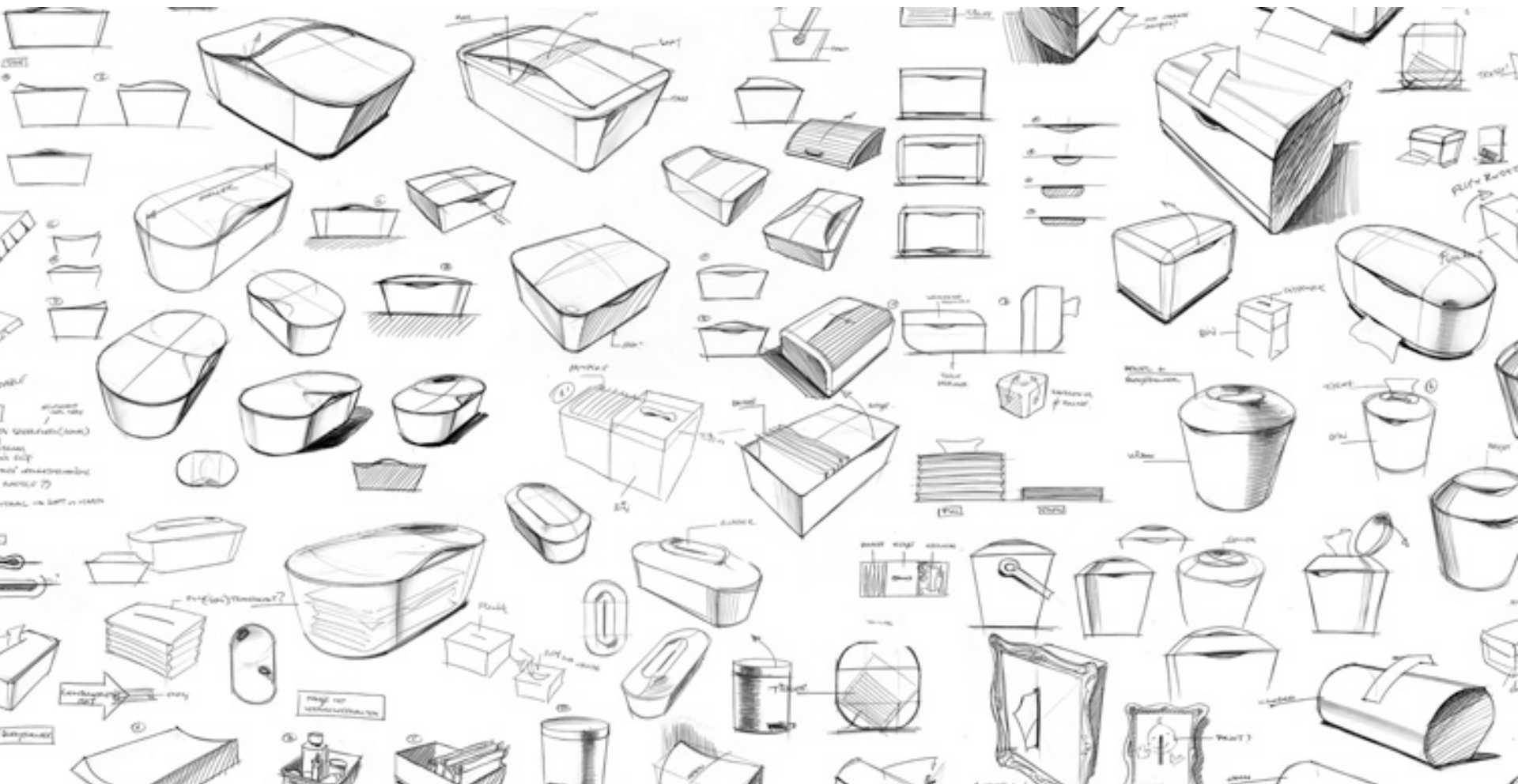
**Middellijnen** aanduiden

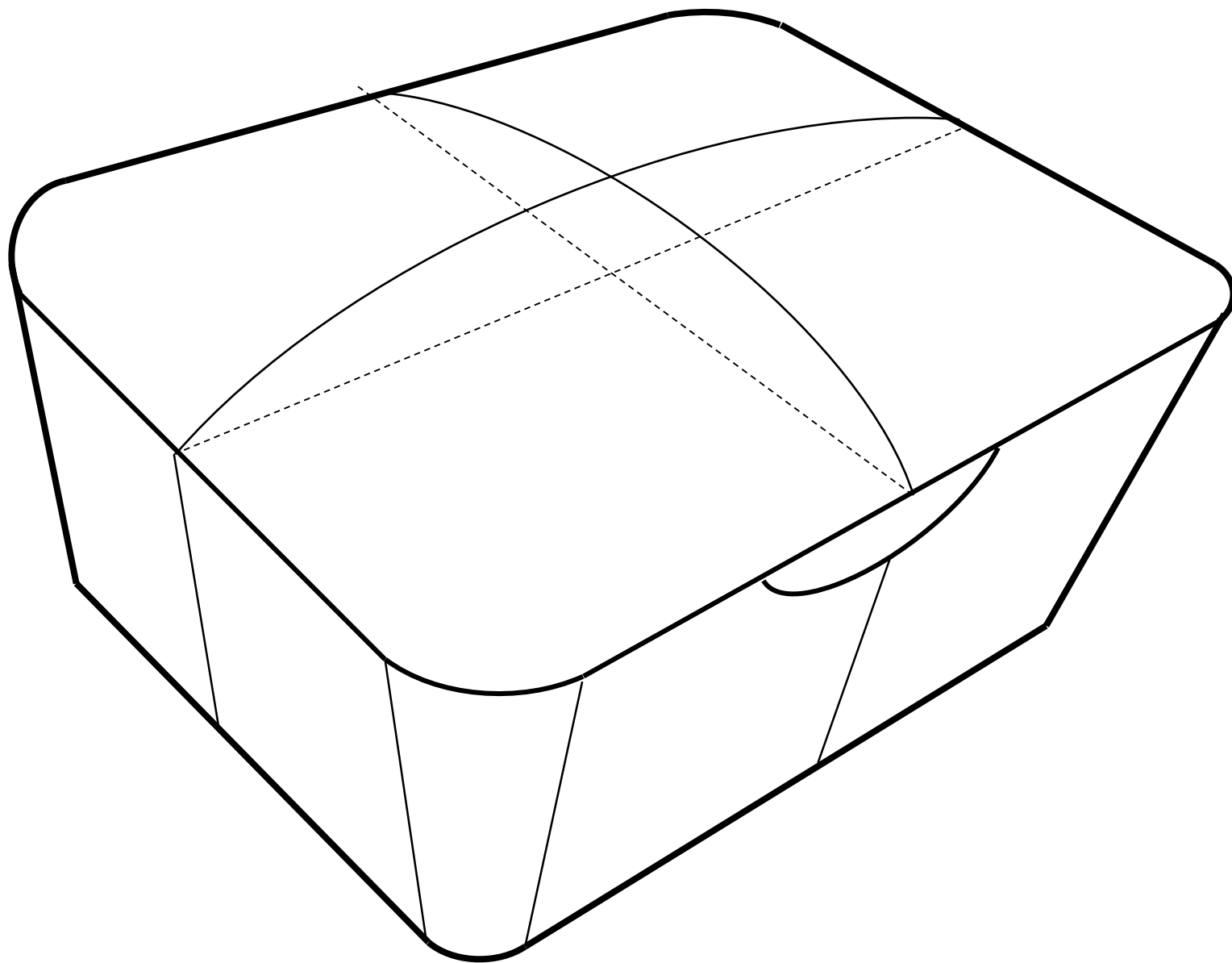
- om vorm te accentueren
- aanduiden hol of bol
- In twee richtingen



# VORMGEVING BASIS

TWEEDE generatie





# VORMGEVING BASIS

TWEEDE generatie

## ***3. Toevoegen van vlakken door volumes toe te voegen (additief)***

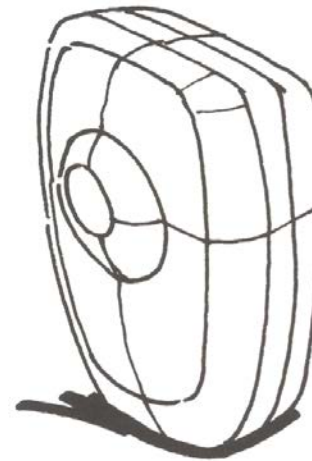
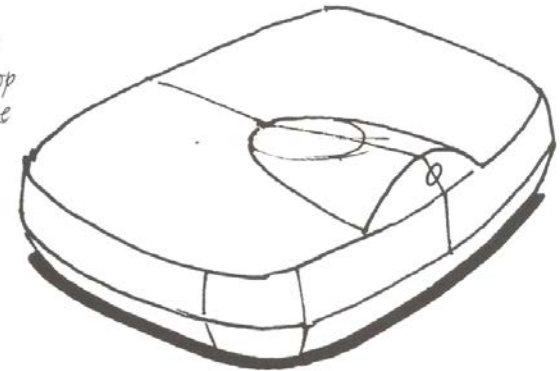


# VORMGEVING BASIS

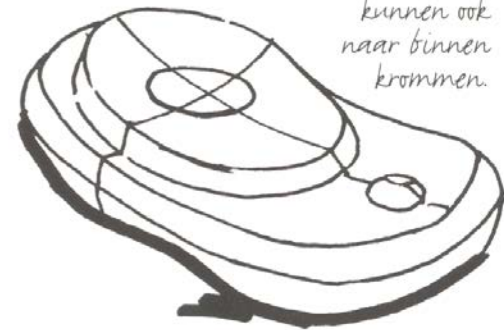
## TWEEDE generatie

### 3. *Toevoegen van vlakken door volumes toe te voegen (additief)*

*Rechts: toegevoegde volumes hoeven niet altijd volledig op een vlak gezet te worden, ze kunnen ook aflopend zijn.*



*Gekromde vlakken kunnen ook naar binnen krommen.*



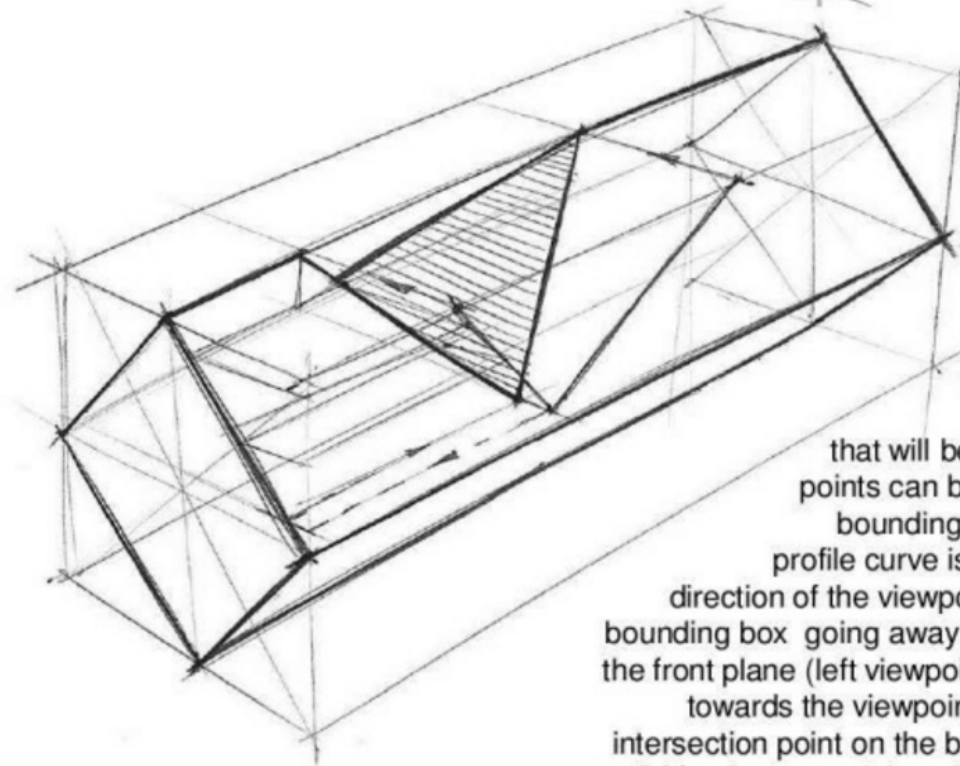
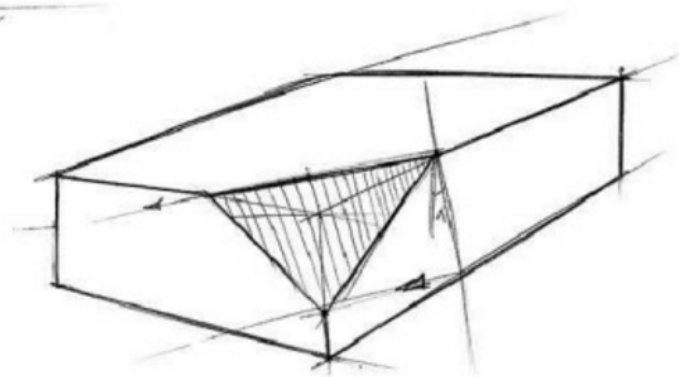
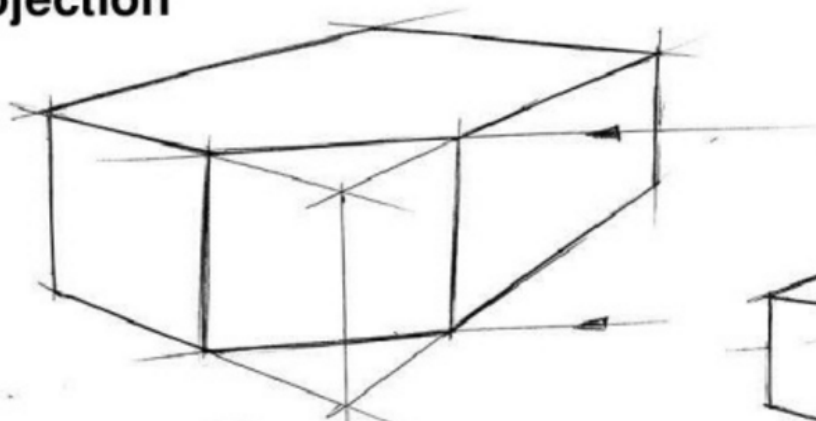
# VORMGEVING BASIS

TWEEDE generatie

**3. Toevoegen van vlakken door volumes toe te voegen (additief)**

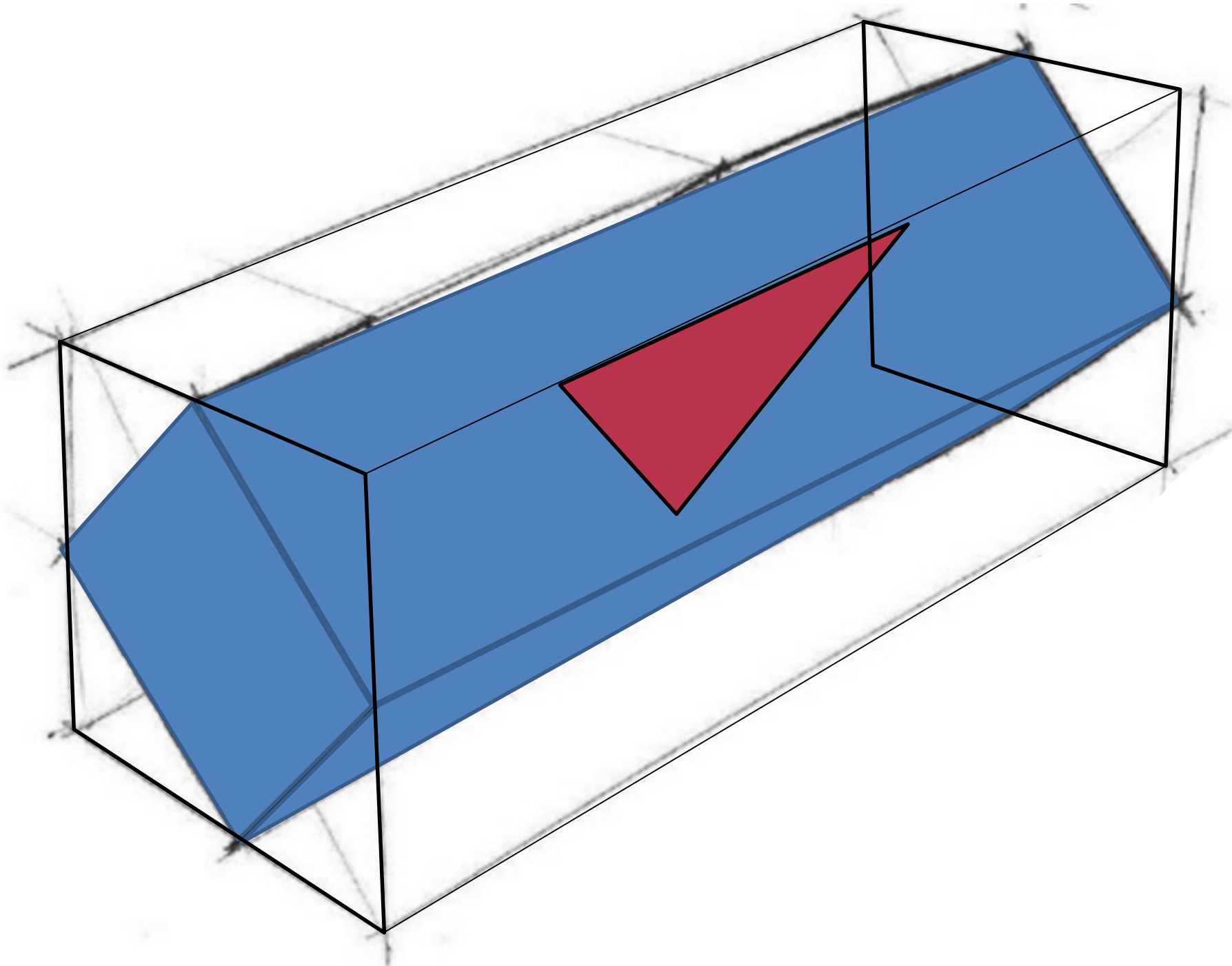


# Advanced Projection

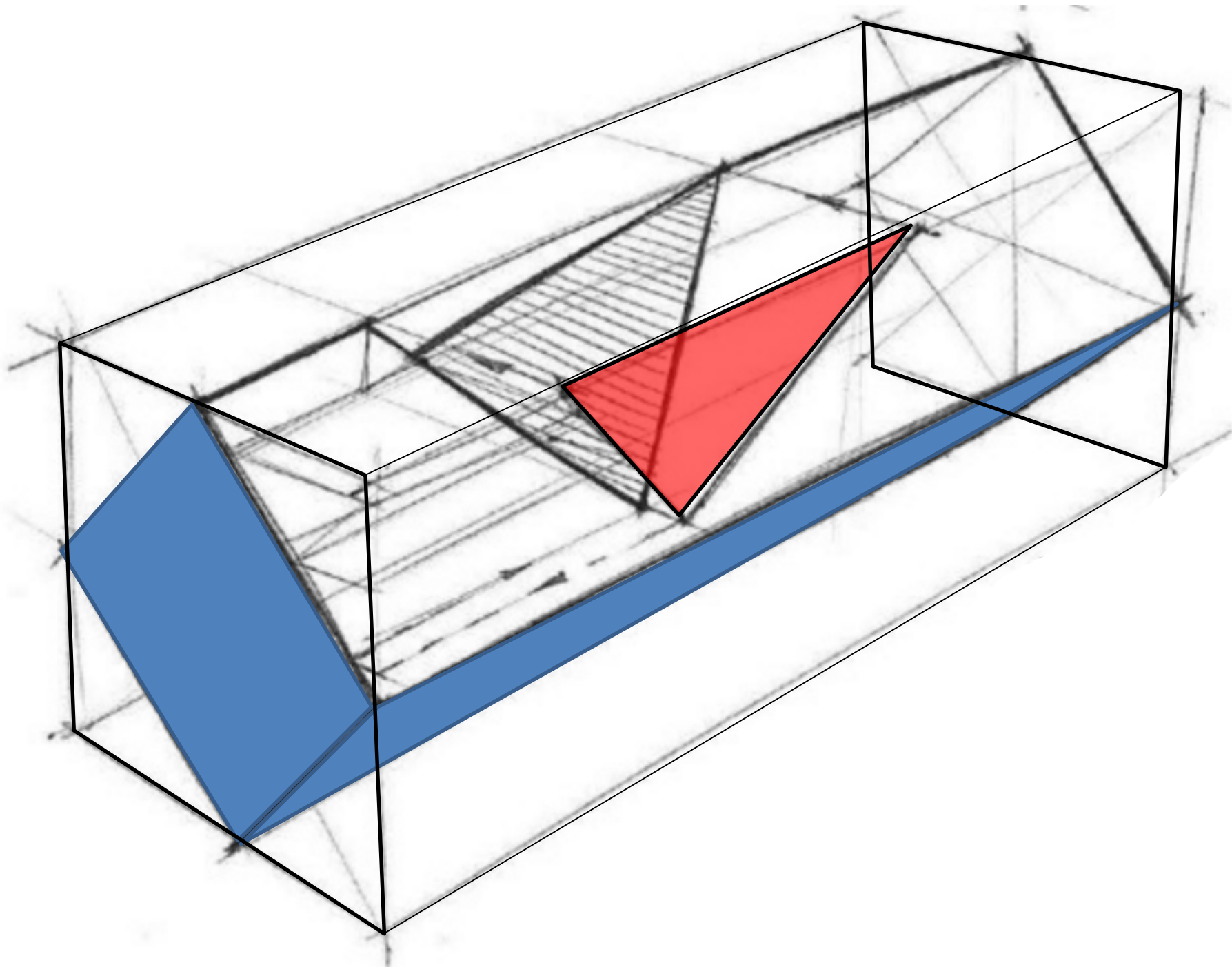


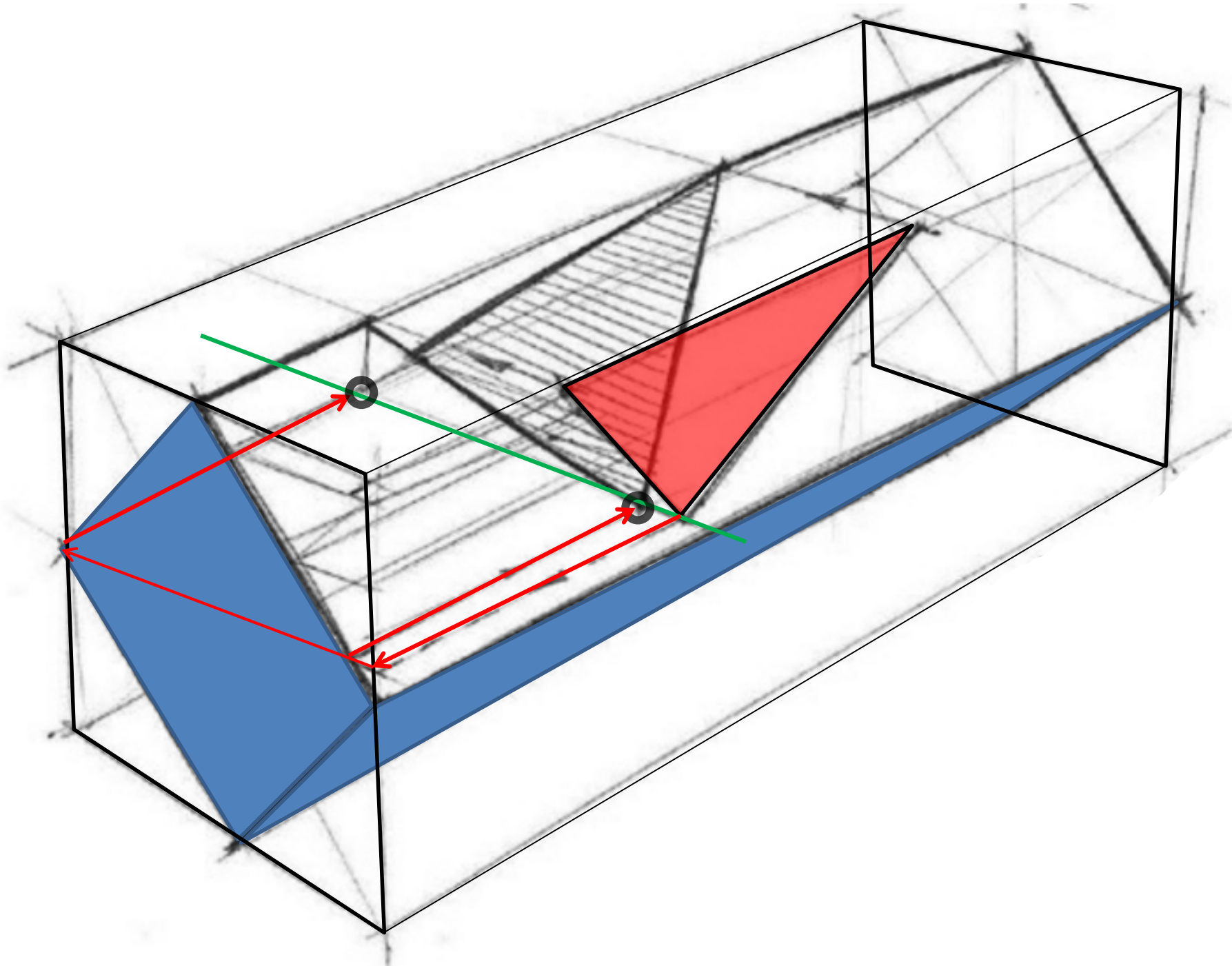
Most of the time the product we use aren't that simple that we can just define them with one basic shape. Most of the time the basic building block has cutouts and protrusions. A simple way to construct cutouts is projection. The same method we used to create a chimney on the house. Always draw a profile curve in one of the planes from the bounding box. This will indicate the section that will be cutout from the solid shape drawn in the bounding box. The edge points can be easily projected onto the solid because it shares a plane with the bounding box. So there's no need to change planes. The middle point of the profile curve is a little more complex. First of we draw a line from this point in the direction of the viewpoint on the right. Then we draw another line in the right plane of the bounding box going away from the right viewpoint. Change planes and follow the direction of the front plane (left viewpoint) until you intersect with the constructed solid. Draw another line towards the viewpoint on the right and another intersection point is constructed. For the intersection point on the back side. Continue on the front plane until you cut the intersect the solid for the second time then draw a line to the viewpoint on the right. Connect the lines and highlight the visible edges. There are other ways of construction this cutout by using the same principle. It's a good exercise to try to create the same drawing using another 'path'.

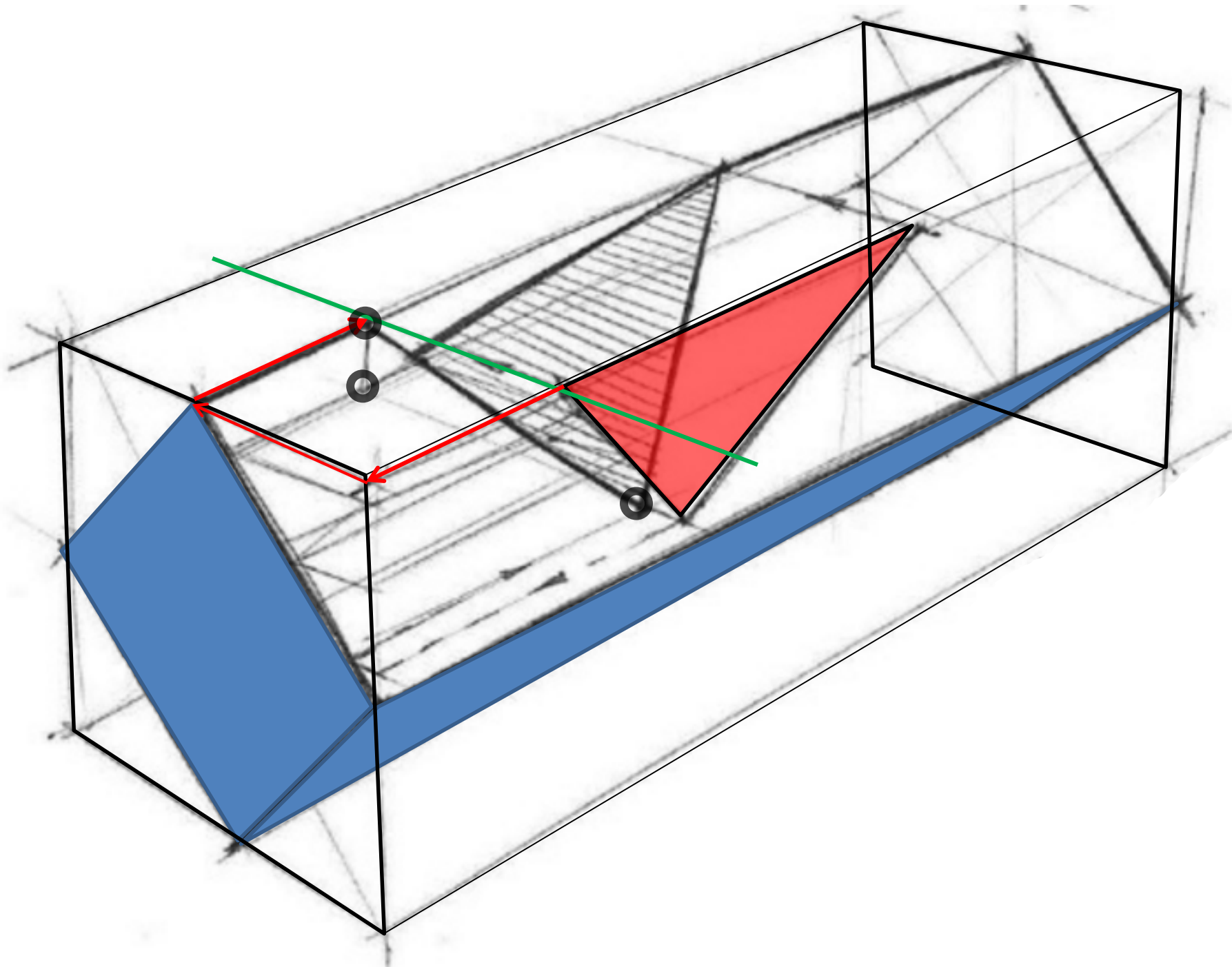


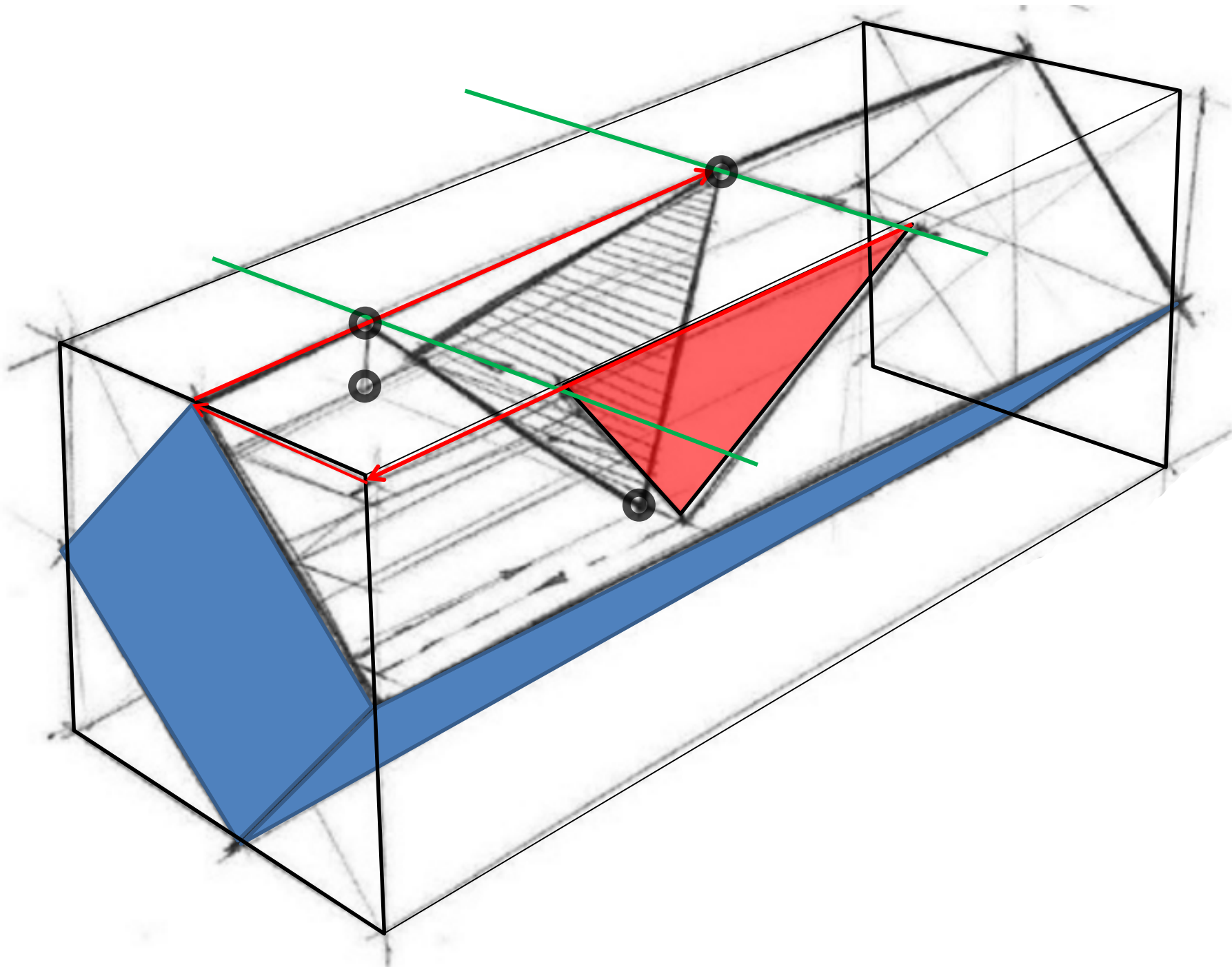


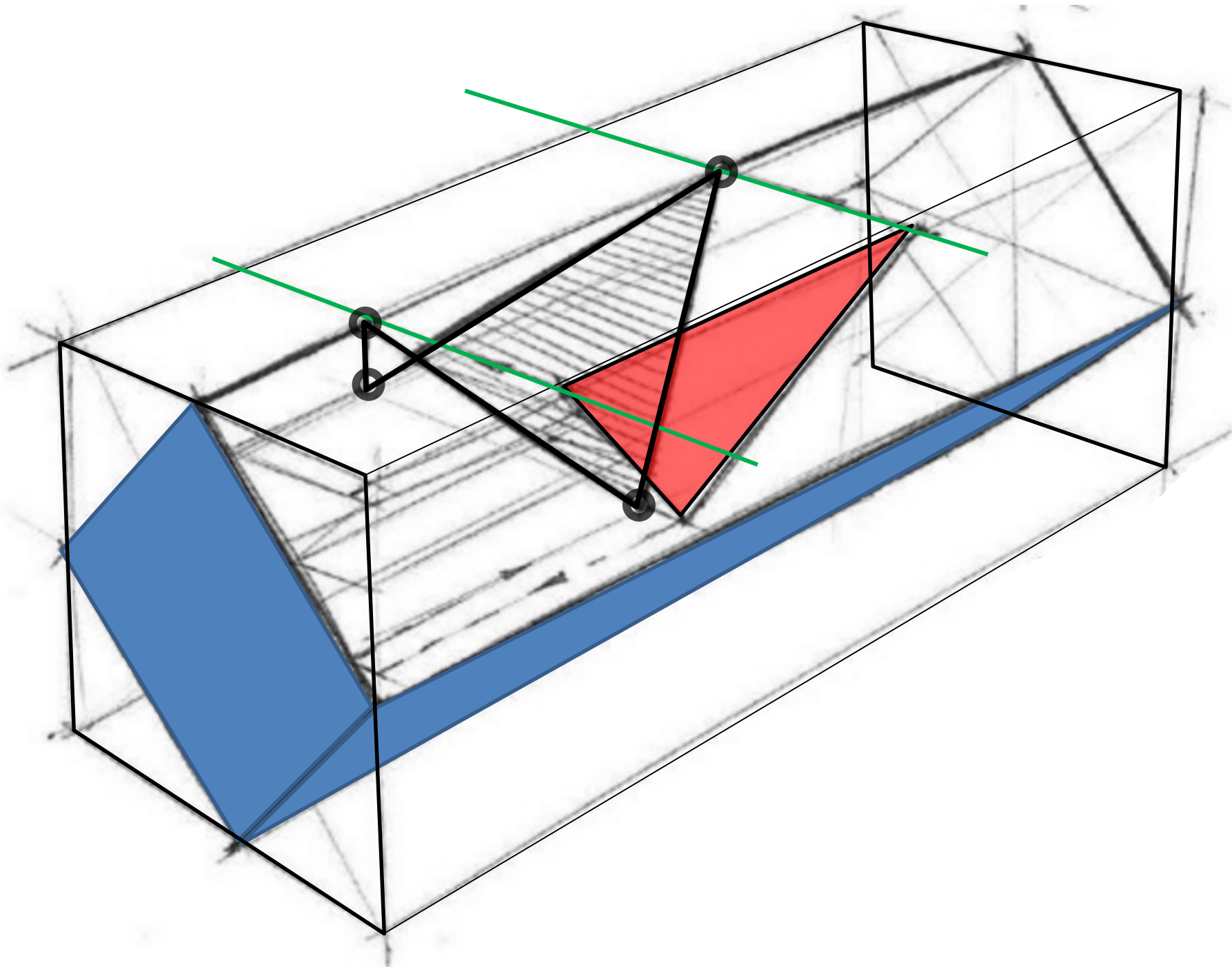




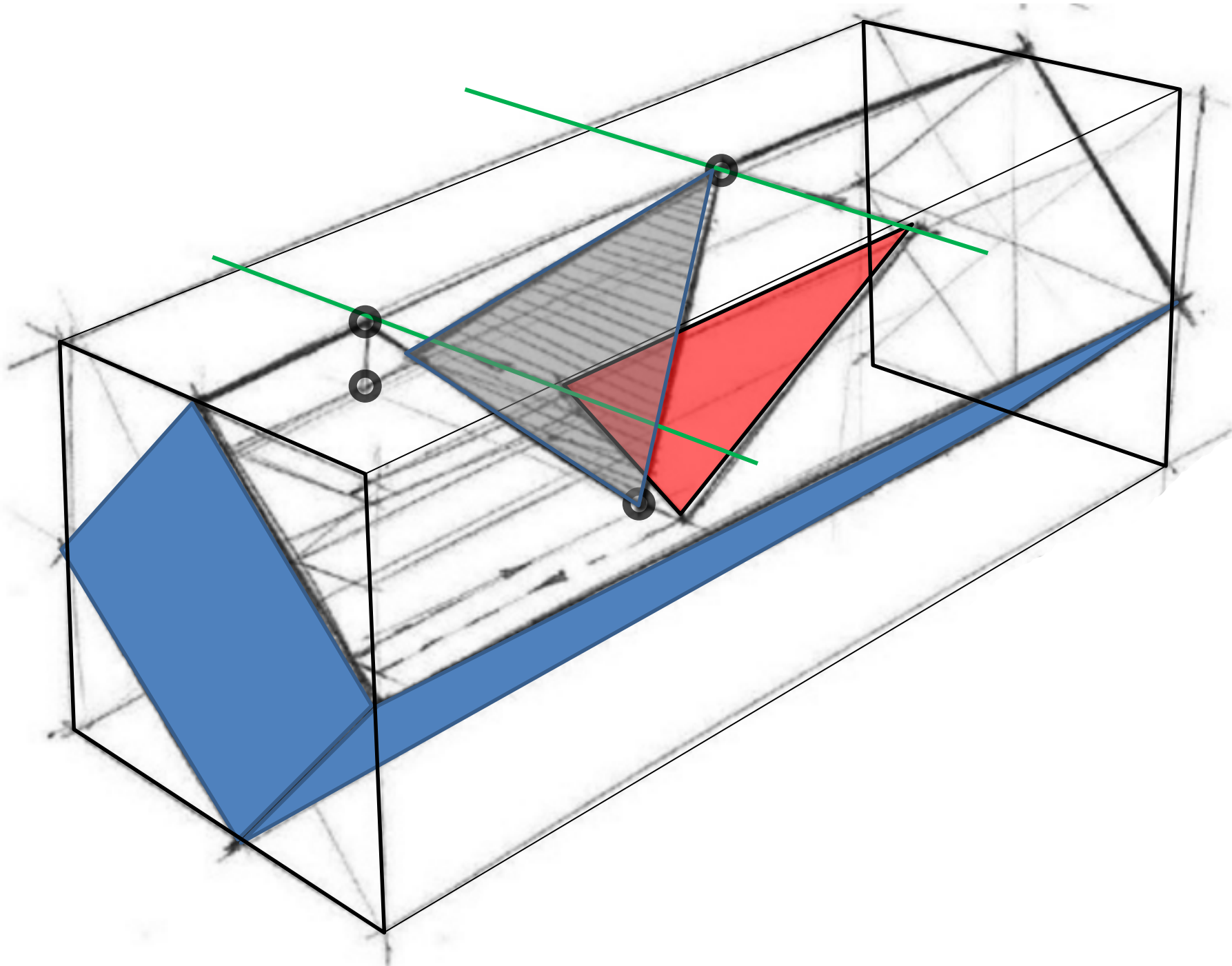


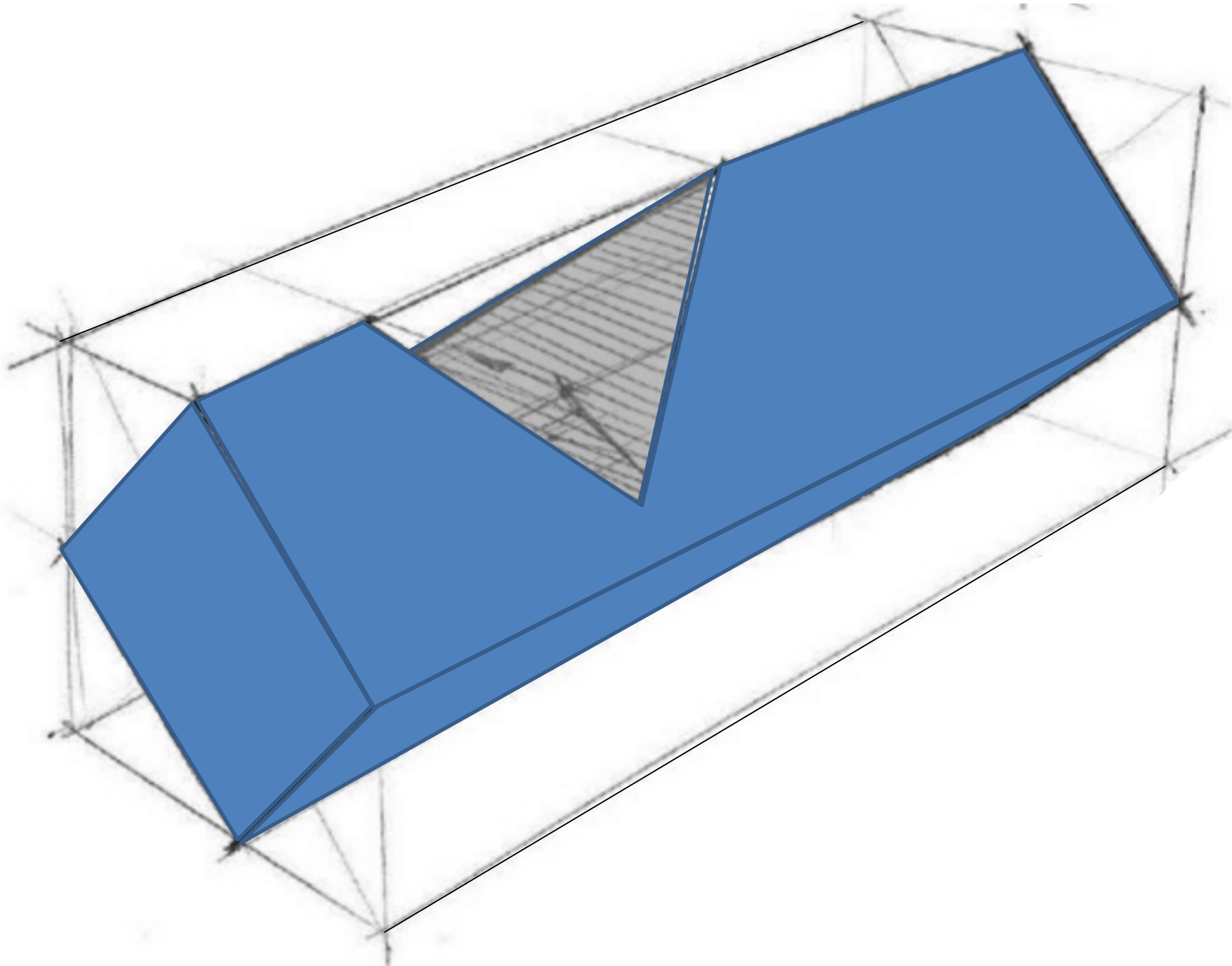


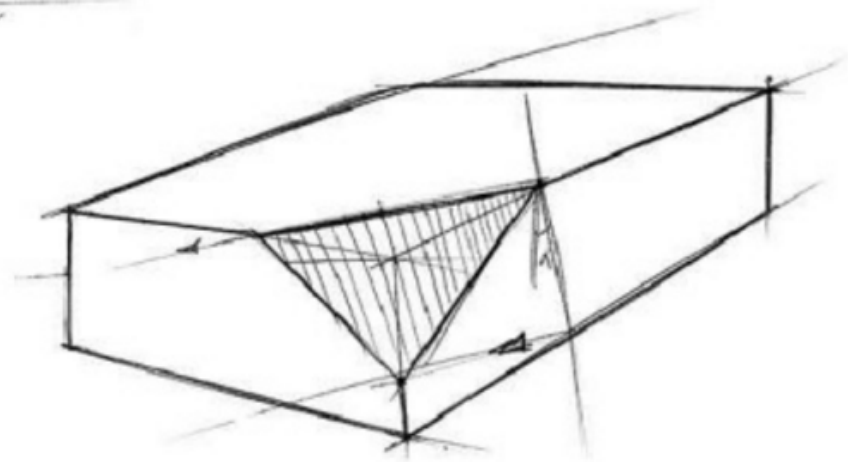
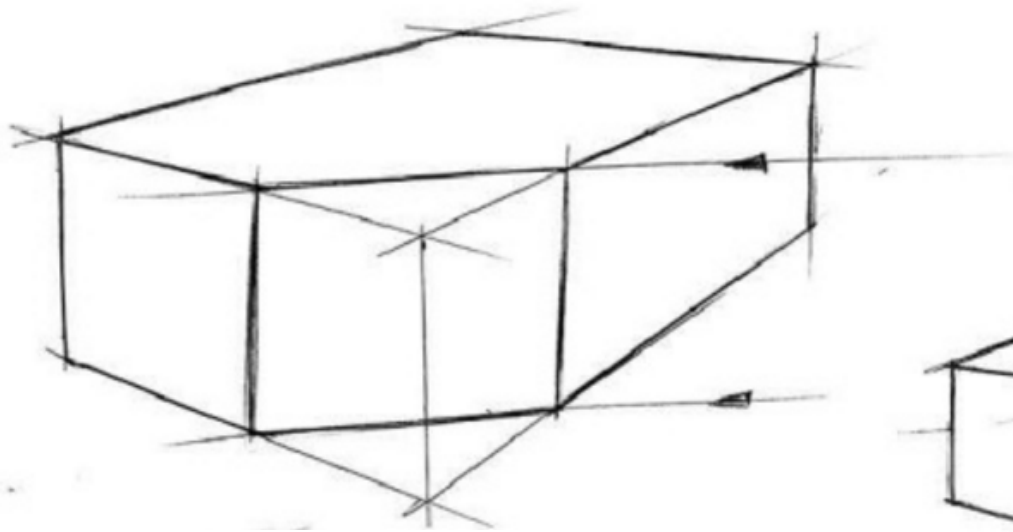




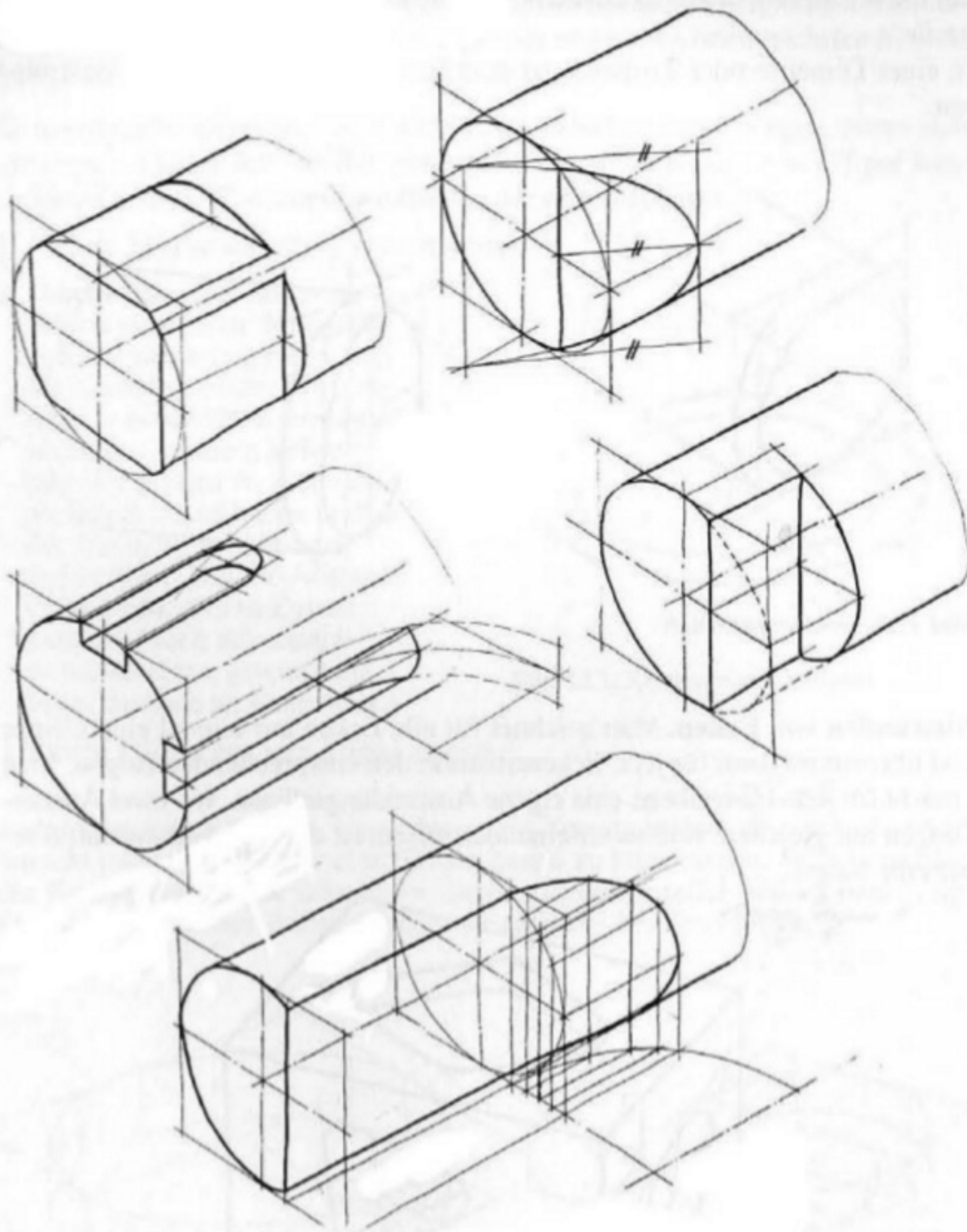




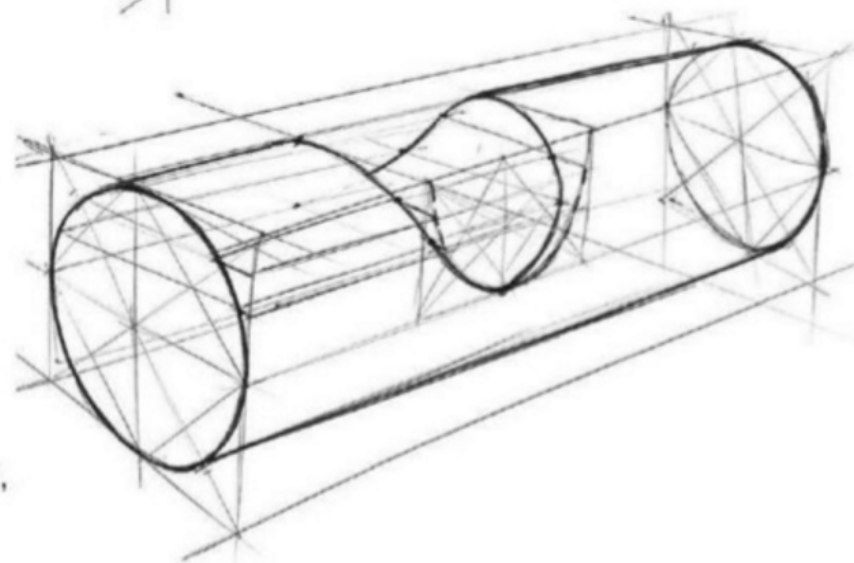
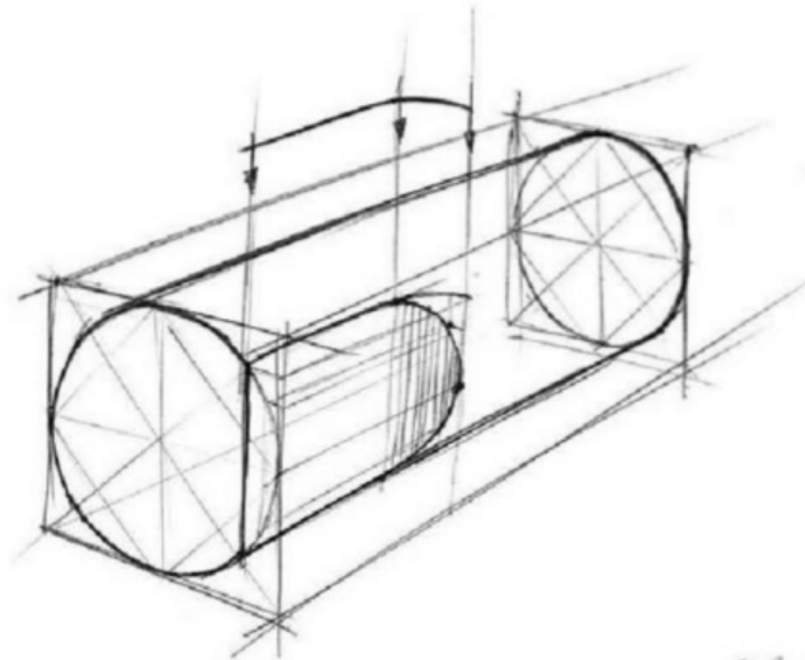
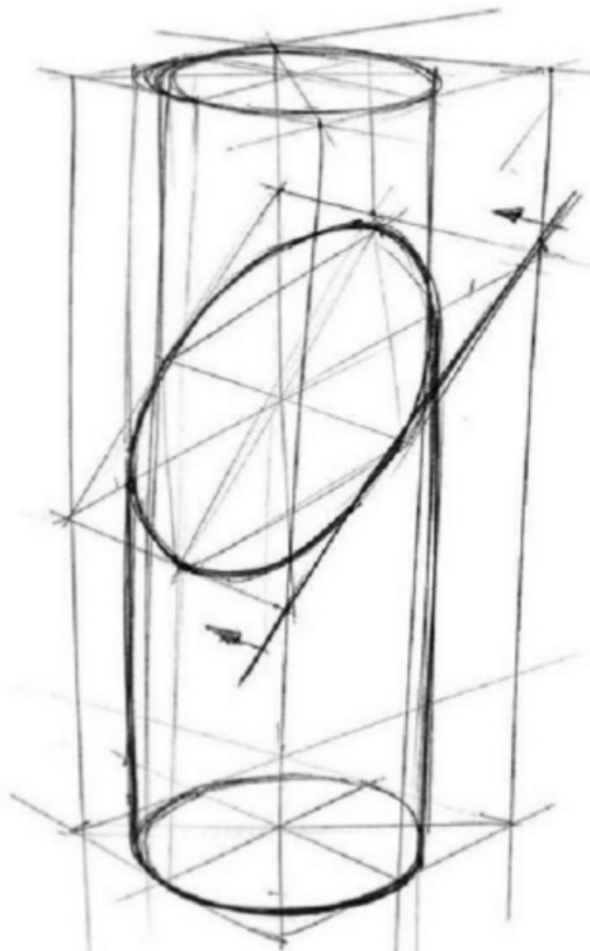




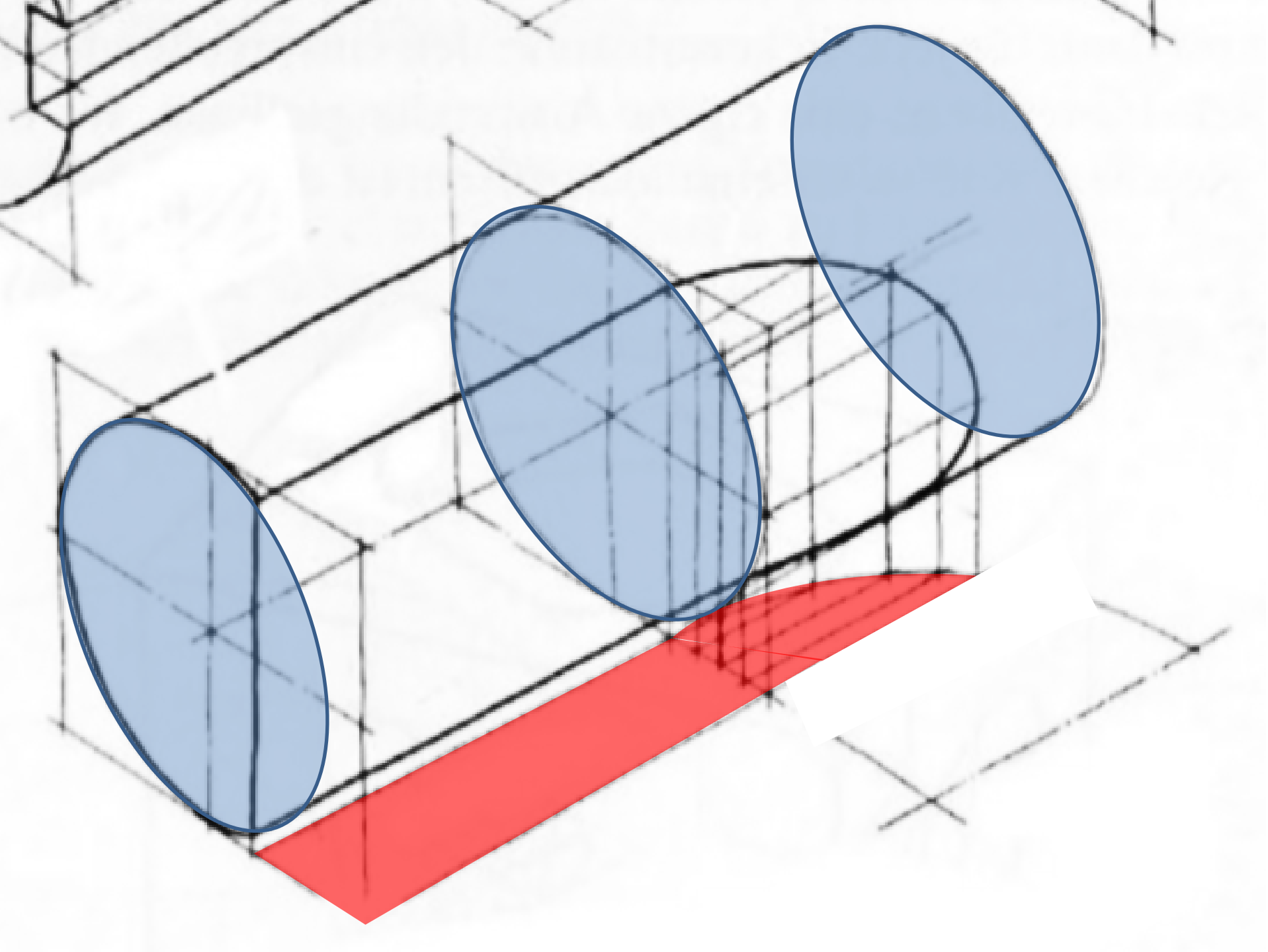


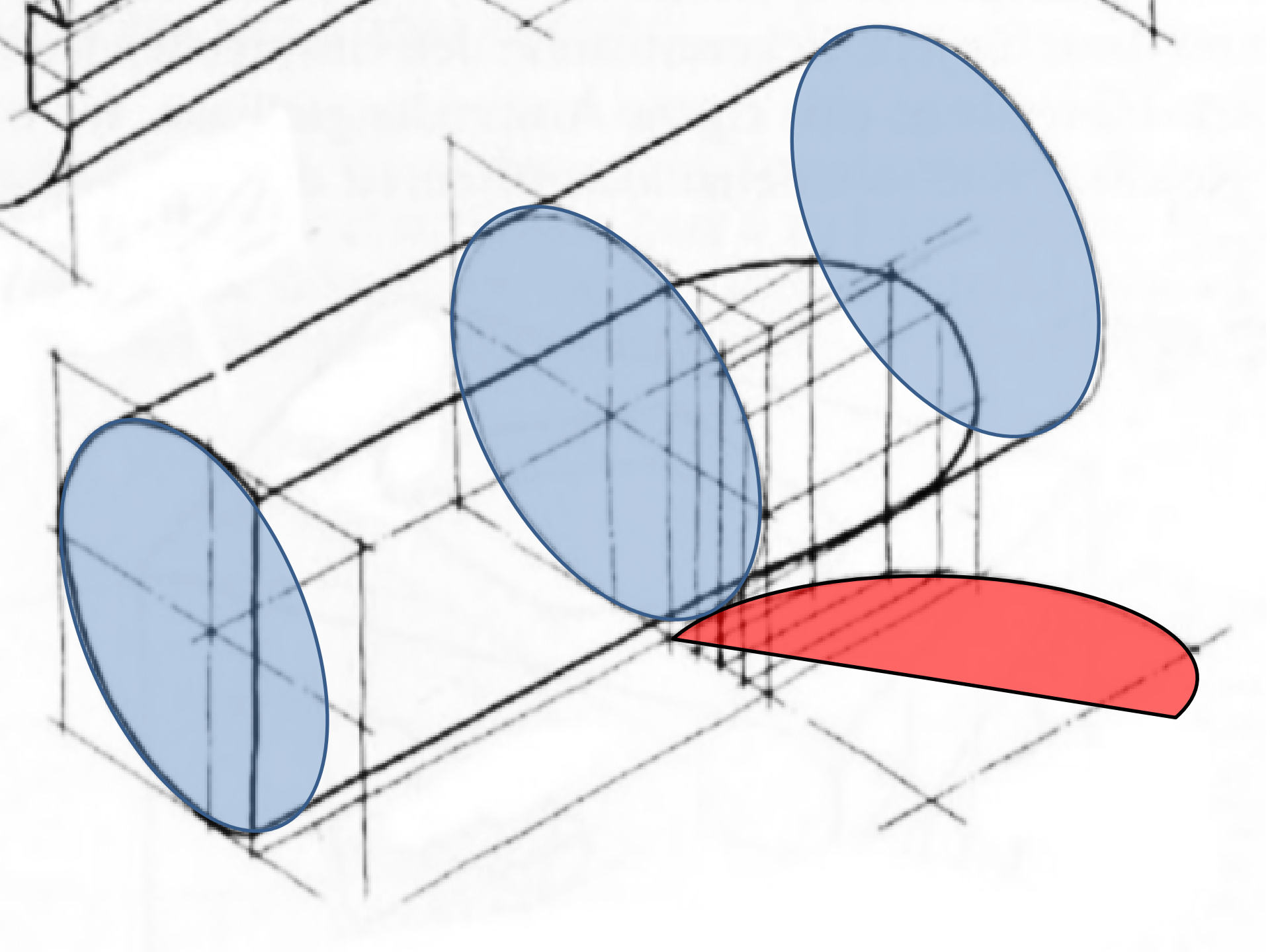


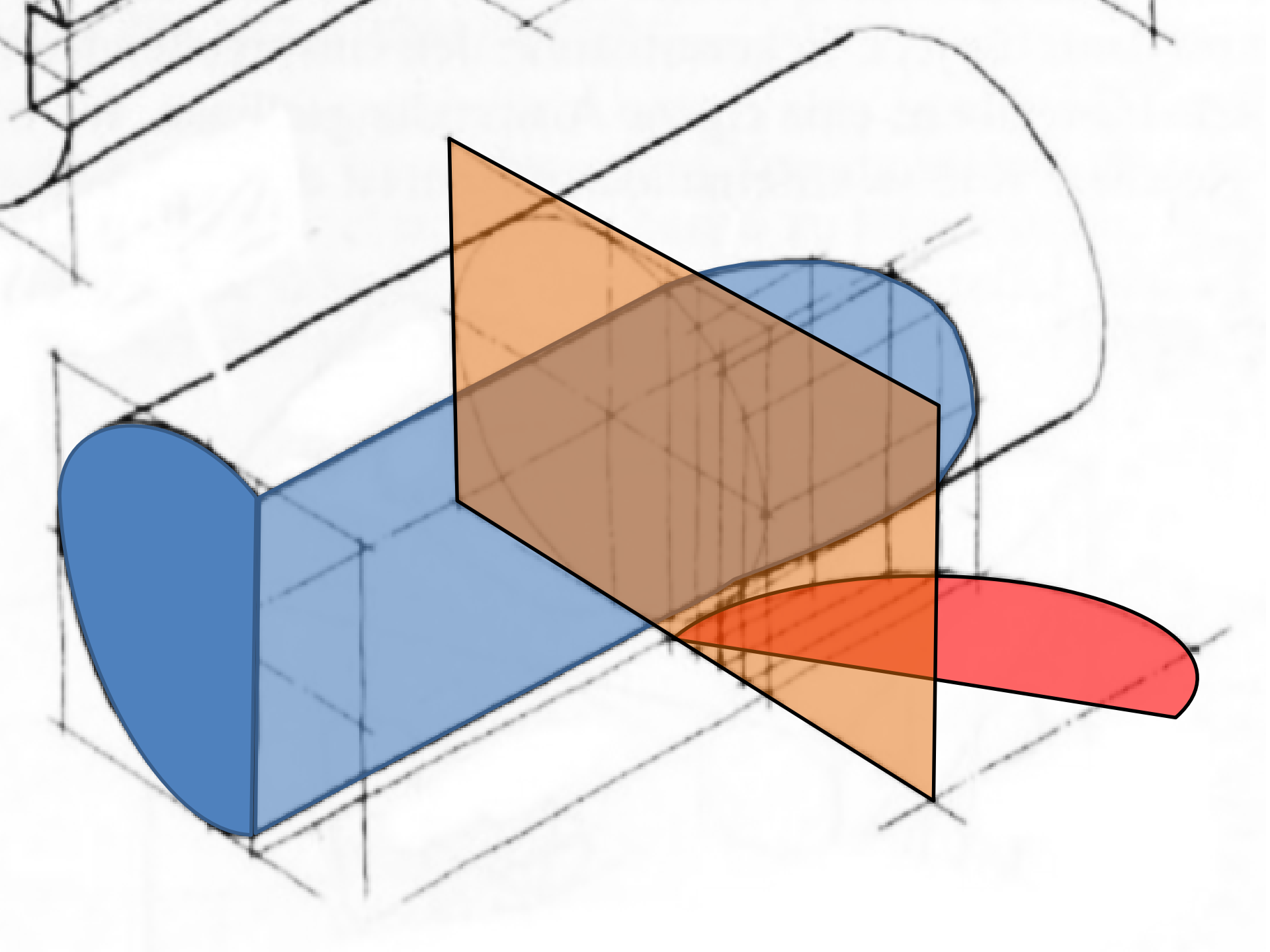
Some more examples of how projection is used to cutout sections of cylinders. Off course construction is just a reference and guide in creating a believable drawing and therefore you can sheet a bit and just construct some intersection points and sketch the profile section with less points. But in the beginning it's advisable that you use as much points as needed. I'll improve your sketching abilities and accuracy.

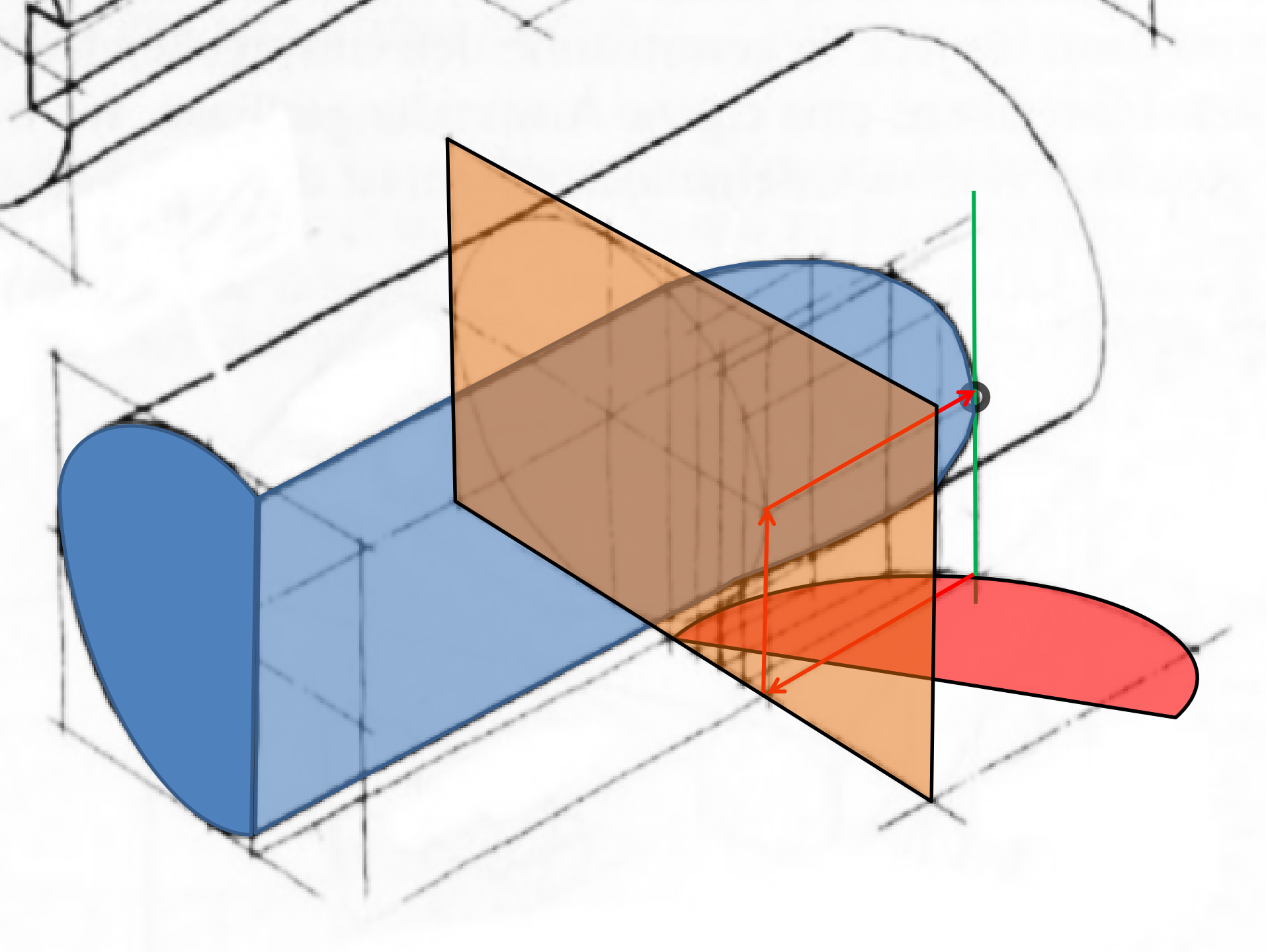


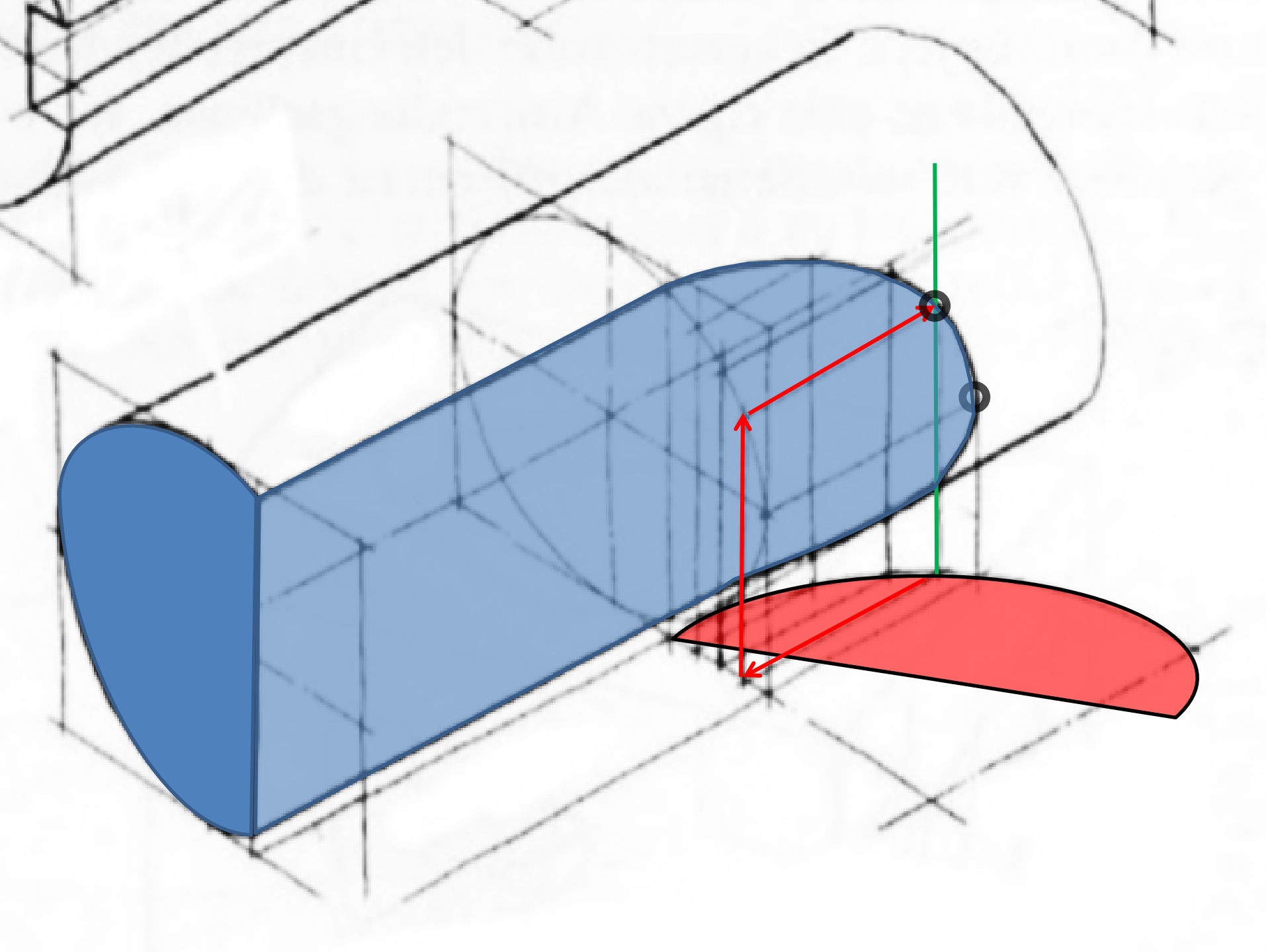
The same method can be applied on all sorts of shapes. But the complexer the surfaces the more points you'll need to project onto the solid. When cutting a rectangular shape with a line then the cutout will also be straight. This is not applicable when one of the shapes is curved, either the solid or the profile. As you can see in the cutouts of both cylinders. When a cylinder is sliced by a straight edge then we can use another trailed method. Just construct the plane defined by the profile curve and construct an ellipse in. It'll be much more time consuming and less accurate if you construct the section with the projection-principle.

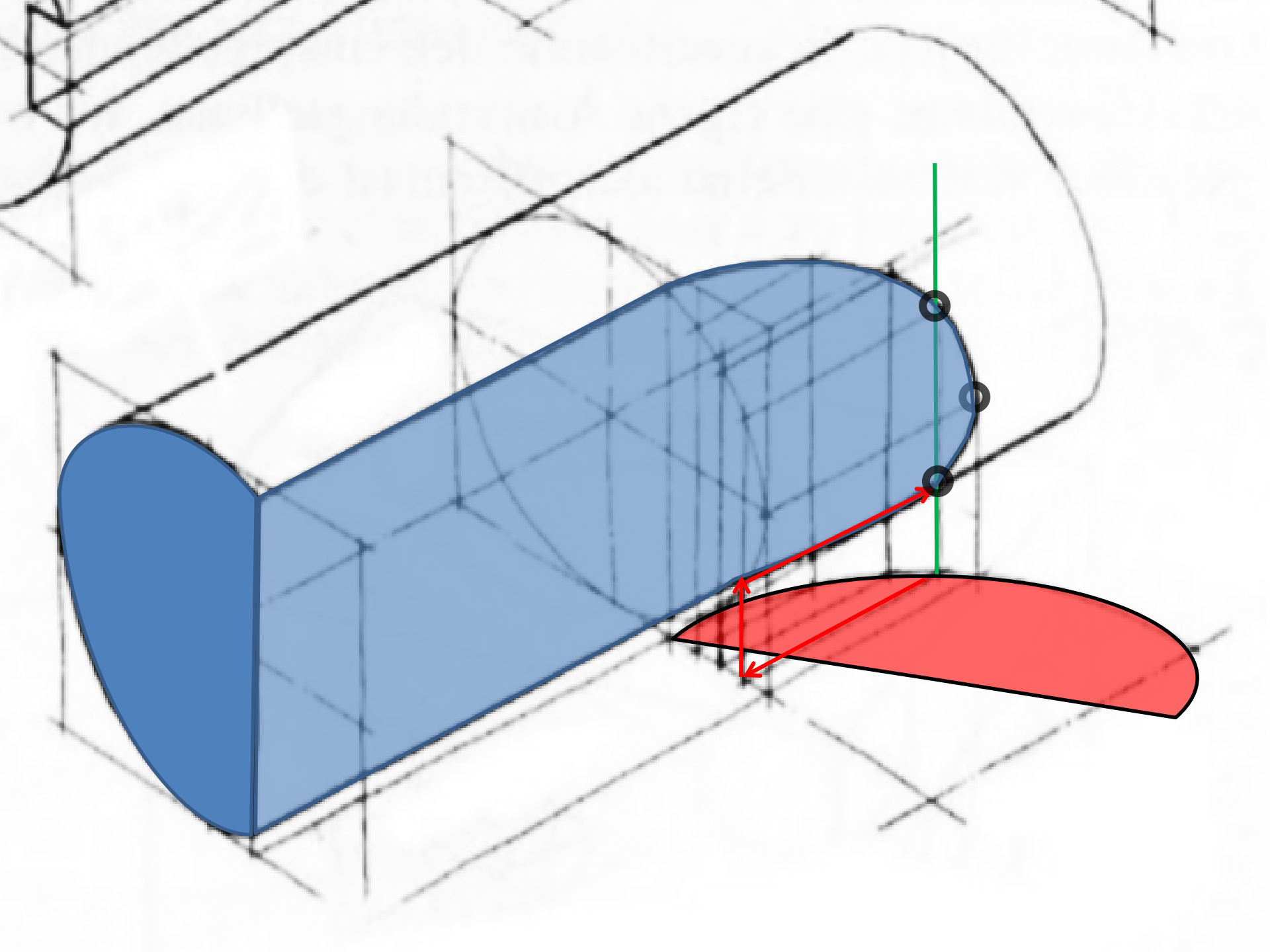




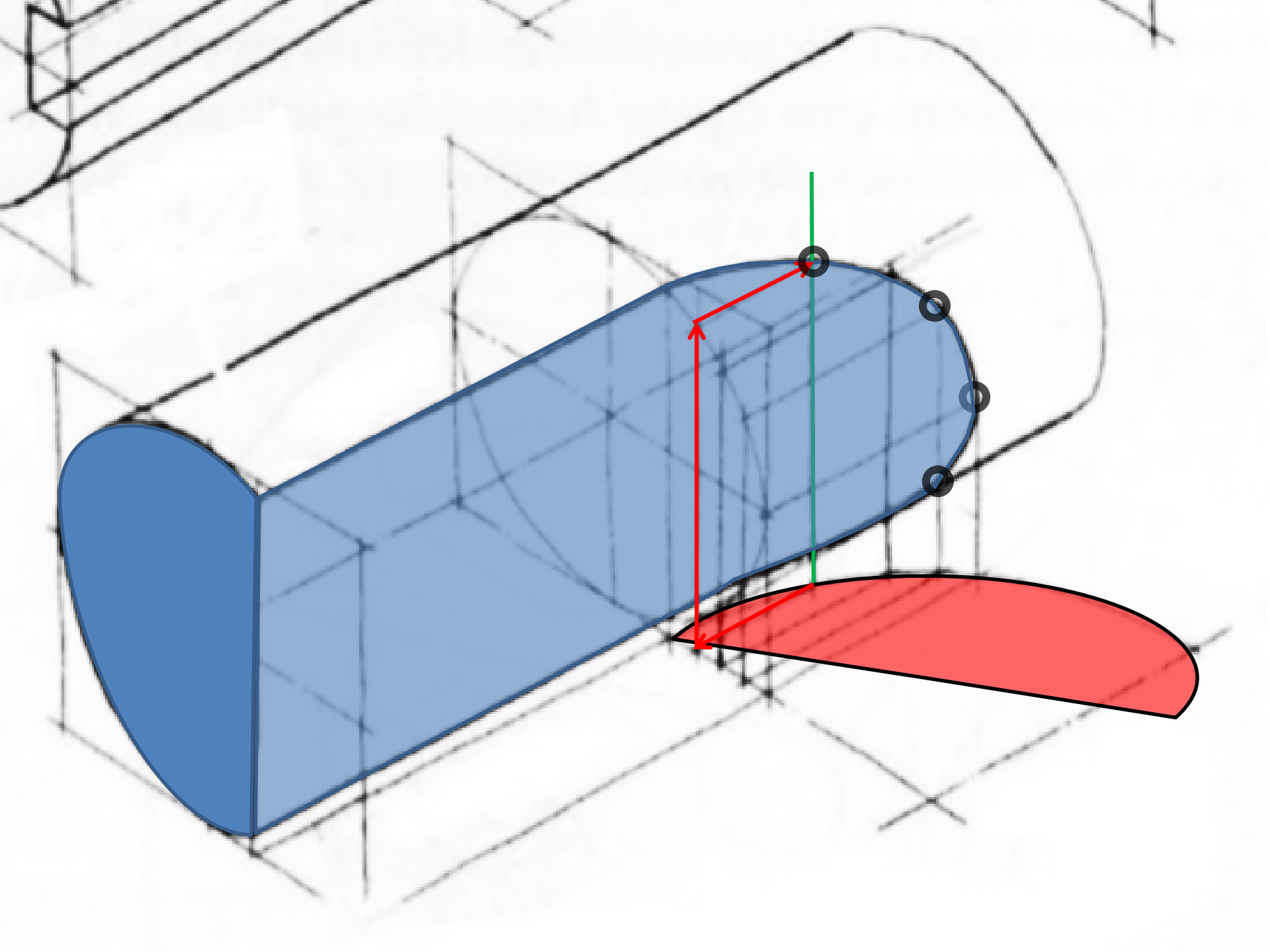


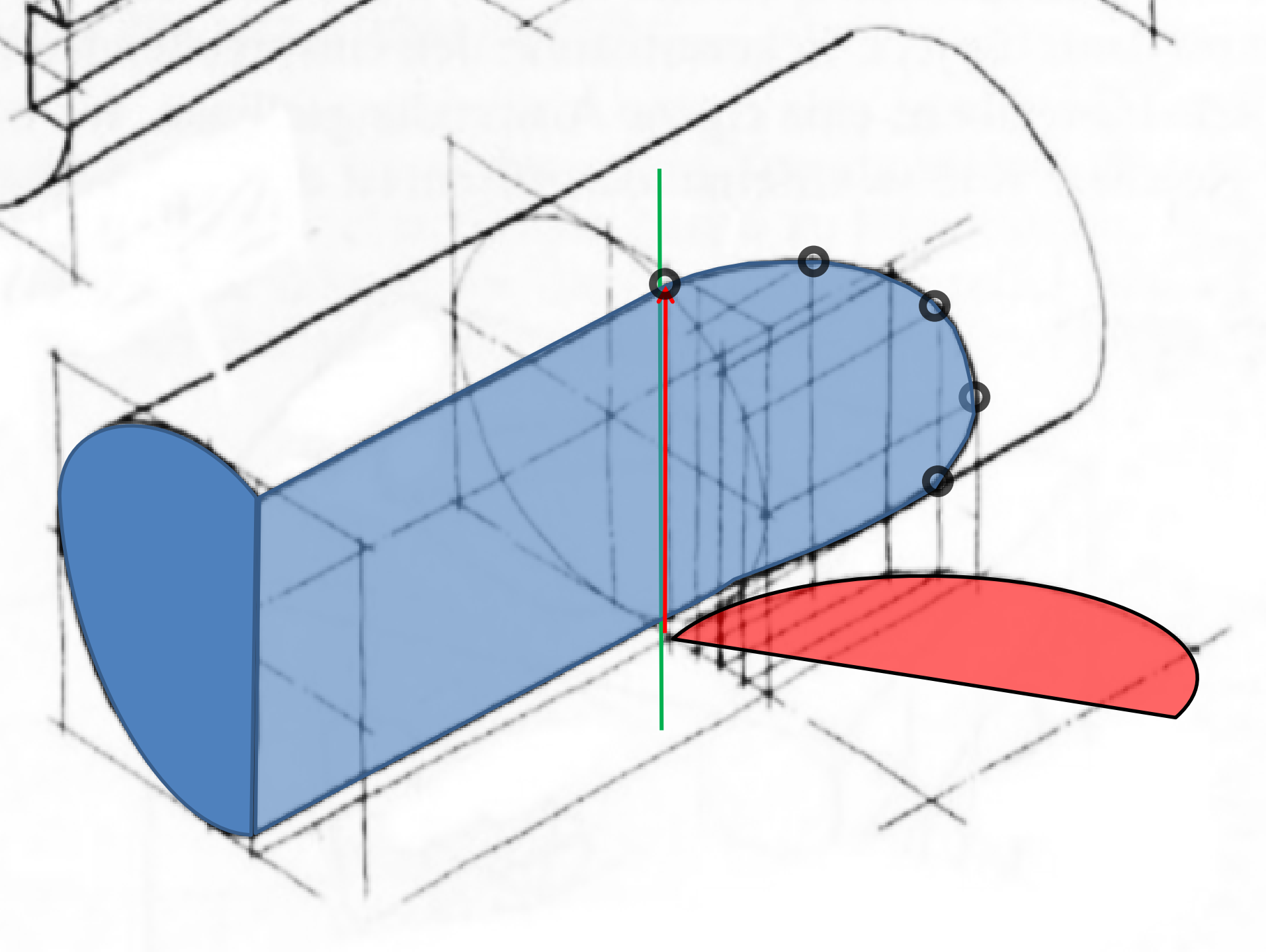


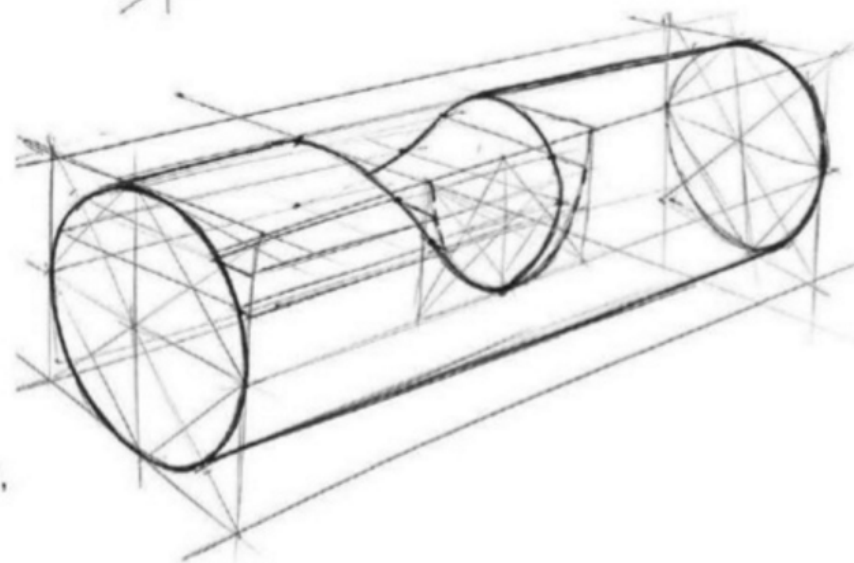
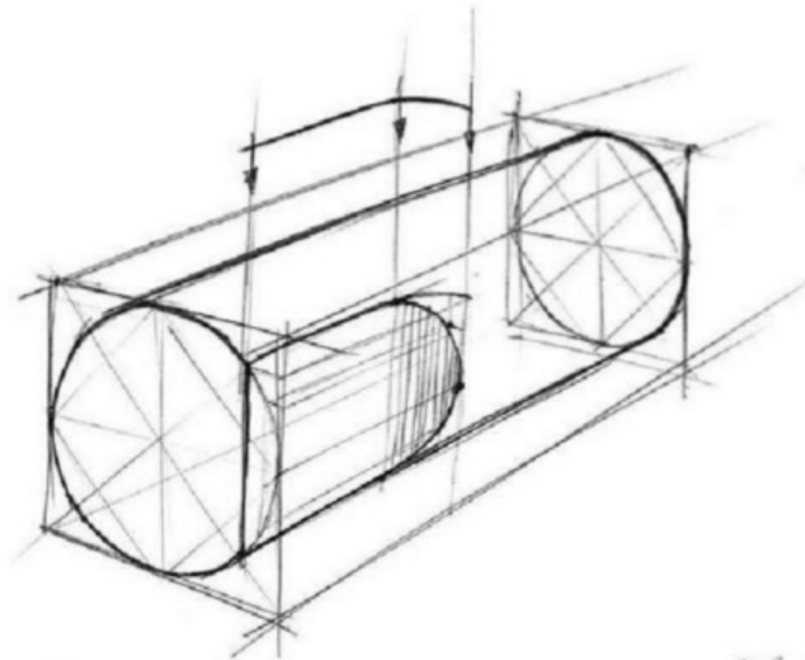
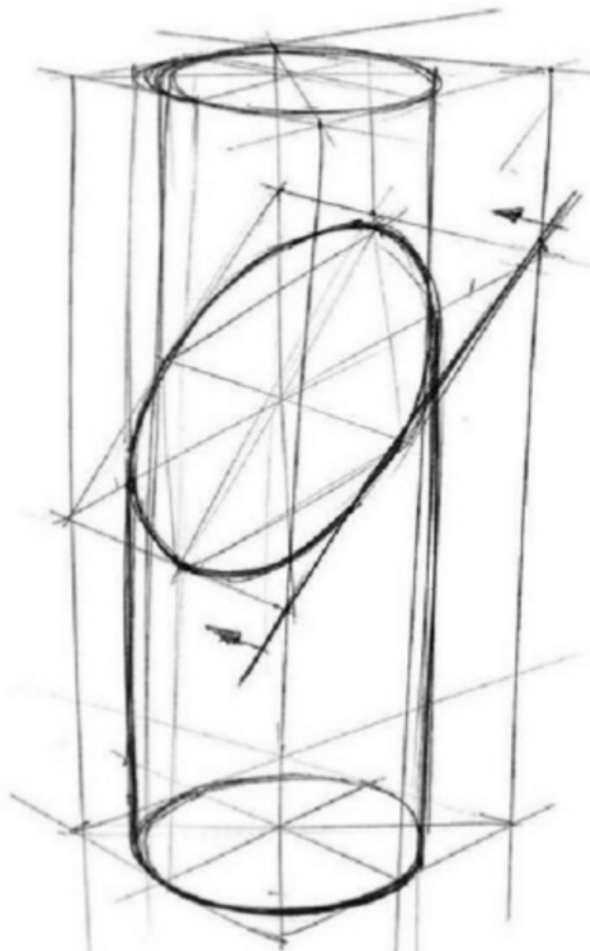




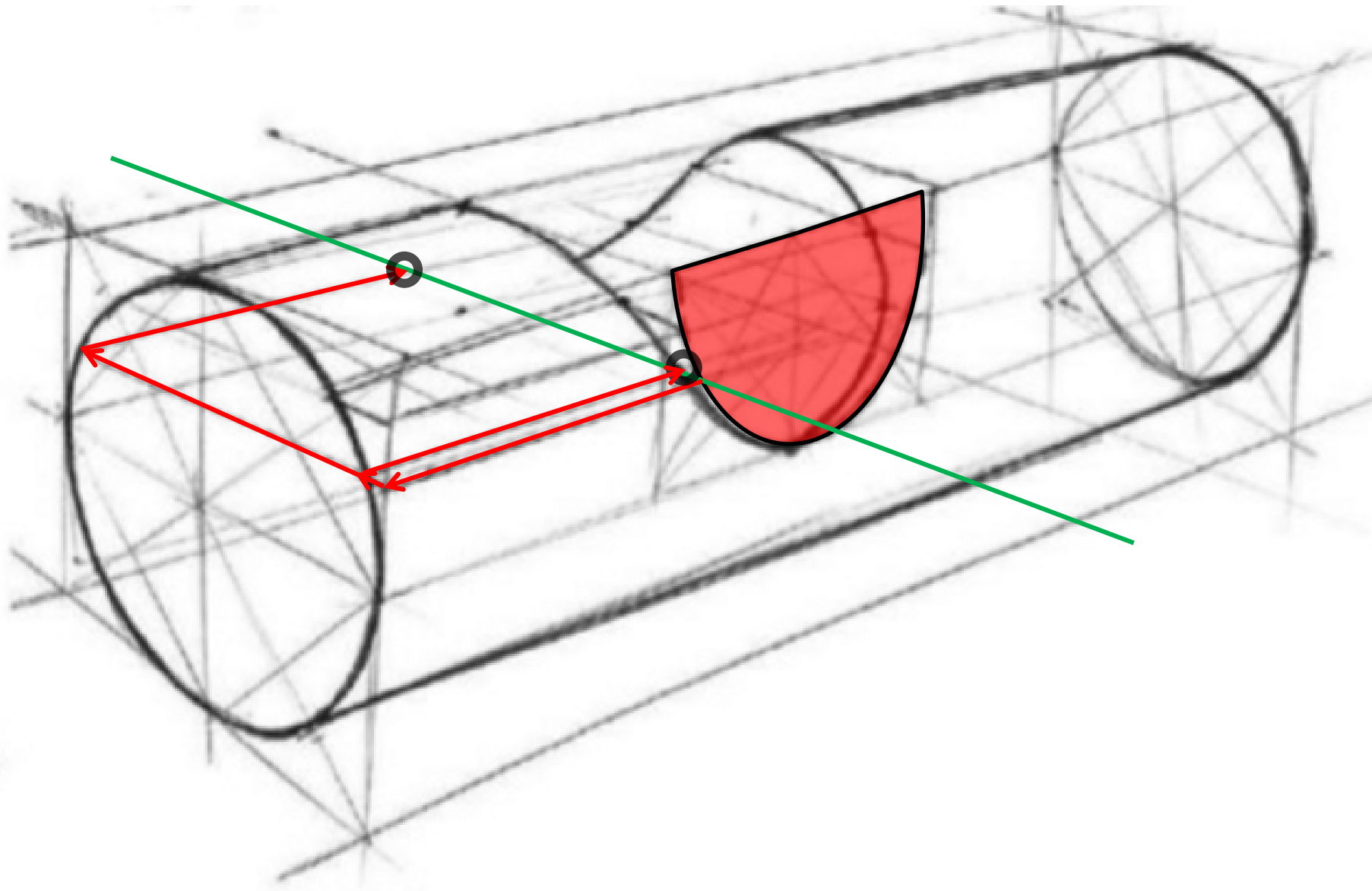


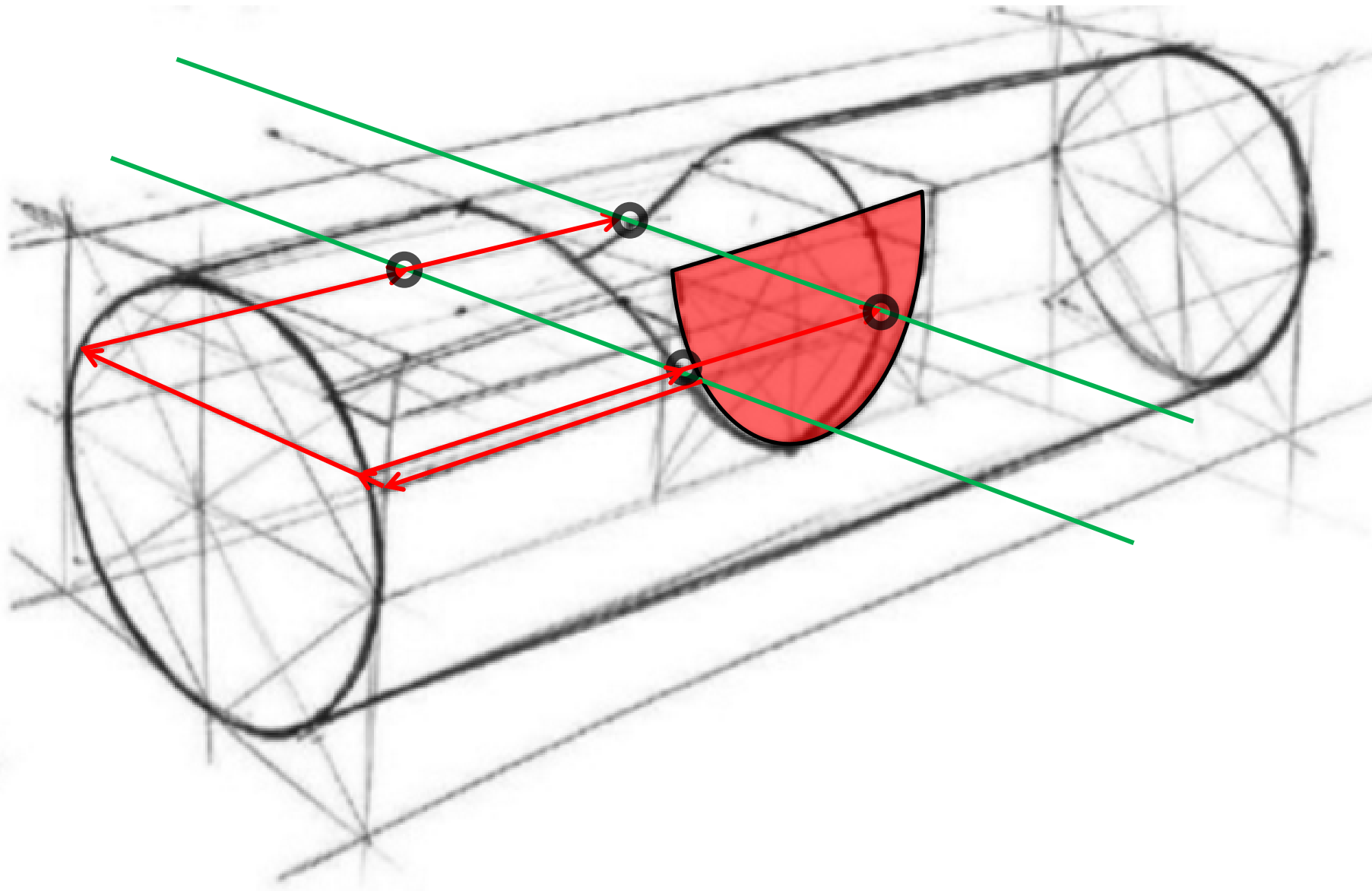


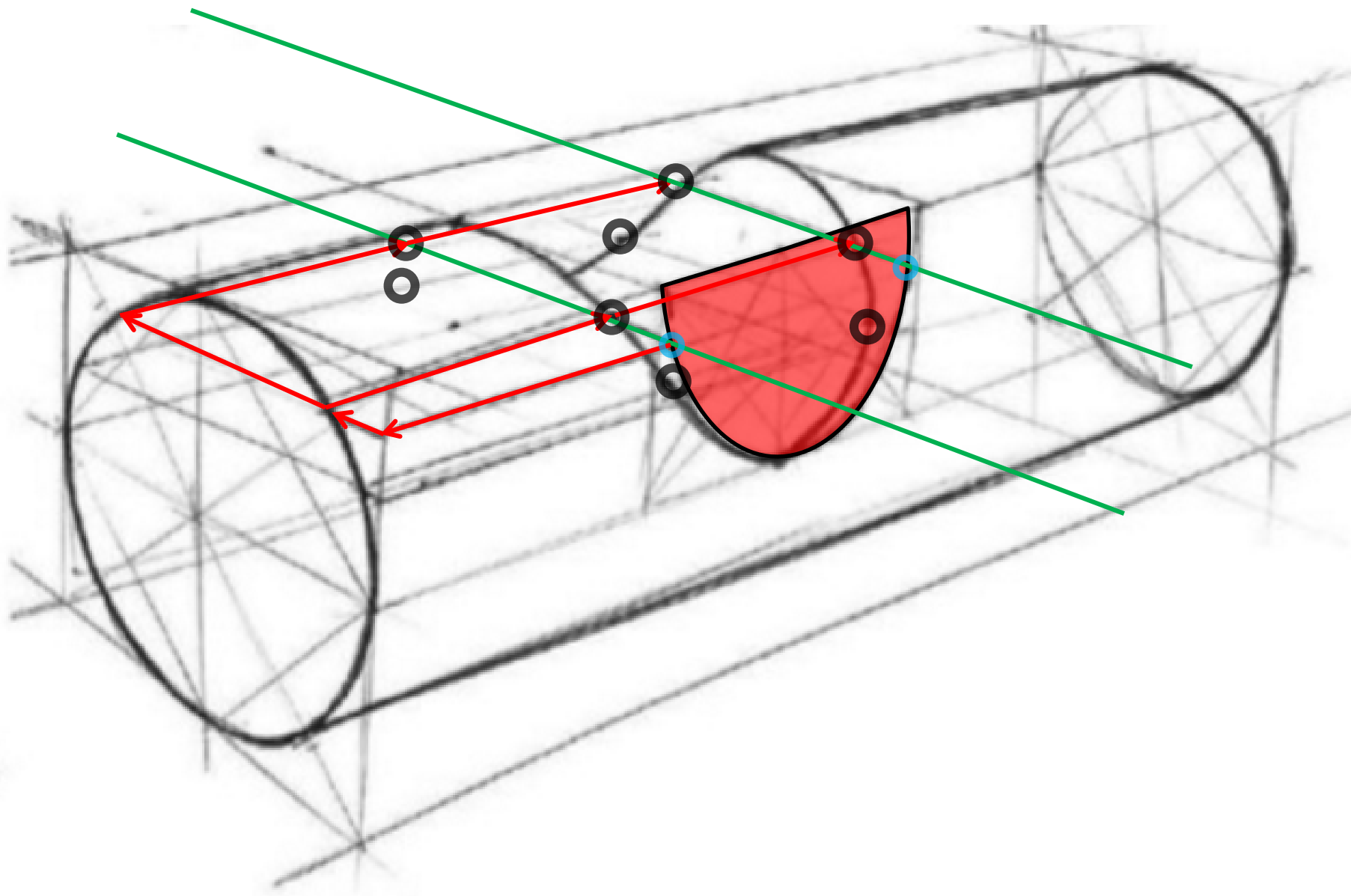


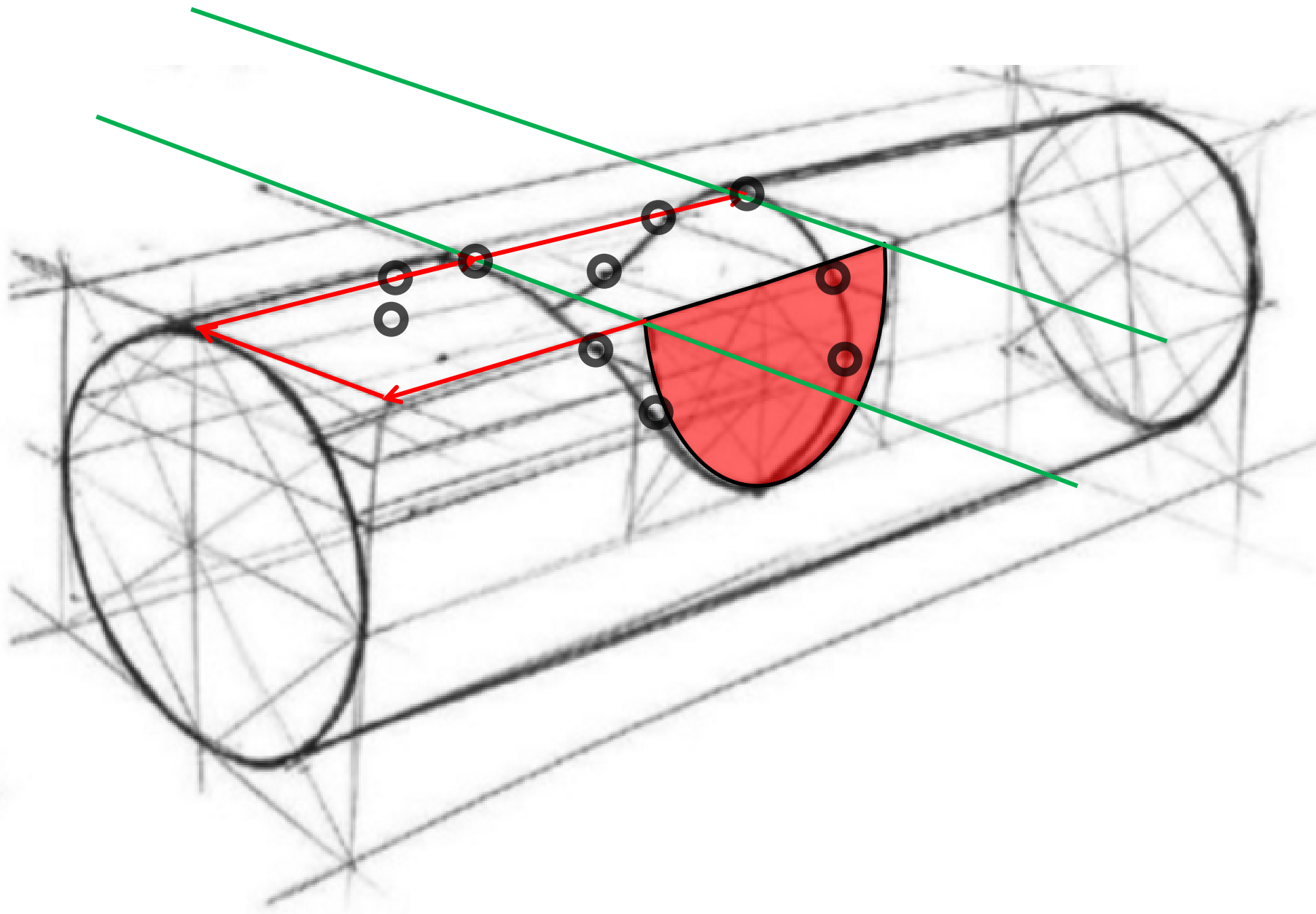


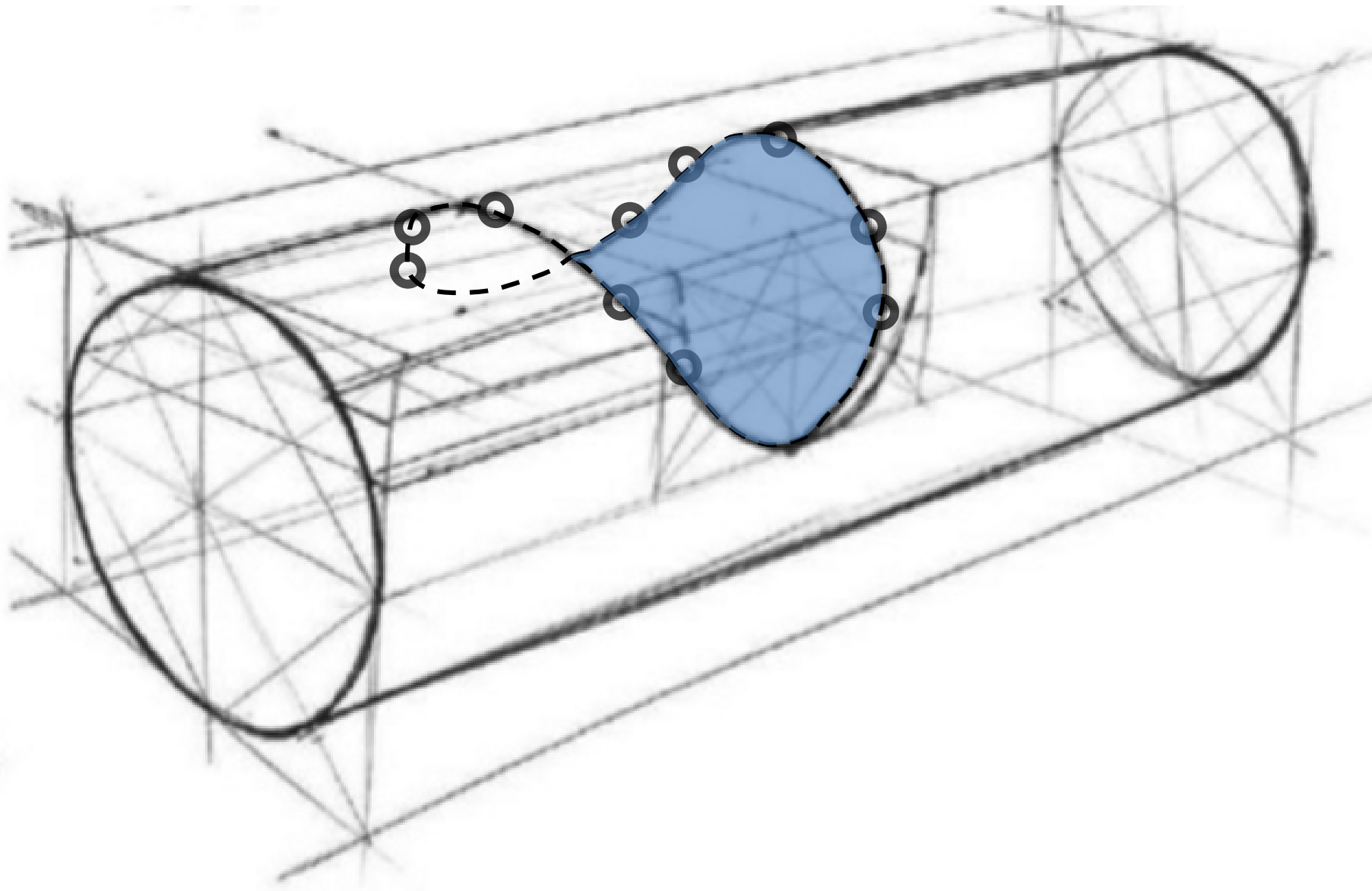
The same method can be applied on all sorts of shapes. But the complexer the surfaces the more points you'll need to project onto the solid. When cutting a rectangular shape with a line then the cutout will also be straight. This is not applicable when one of the shapes is curved, either the solid or the profile. As you can see in the cutouts of both cylinders. When a cylinder is sliced by a straight edge then we can use another trailed method. Just construct the plane defined by the profile curve and construct an ellipse in. It'll be much more time consuming and less accurate if you construct the section with the projection-principle.













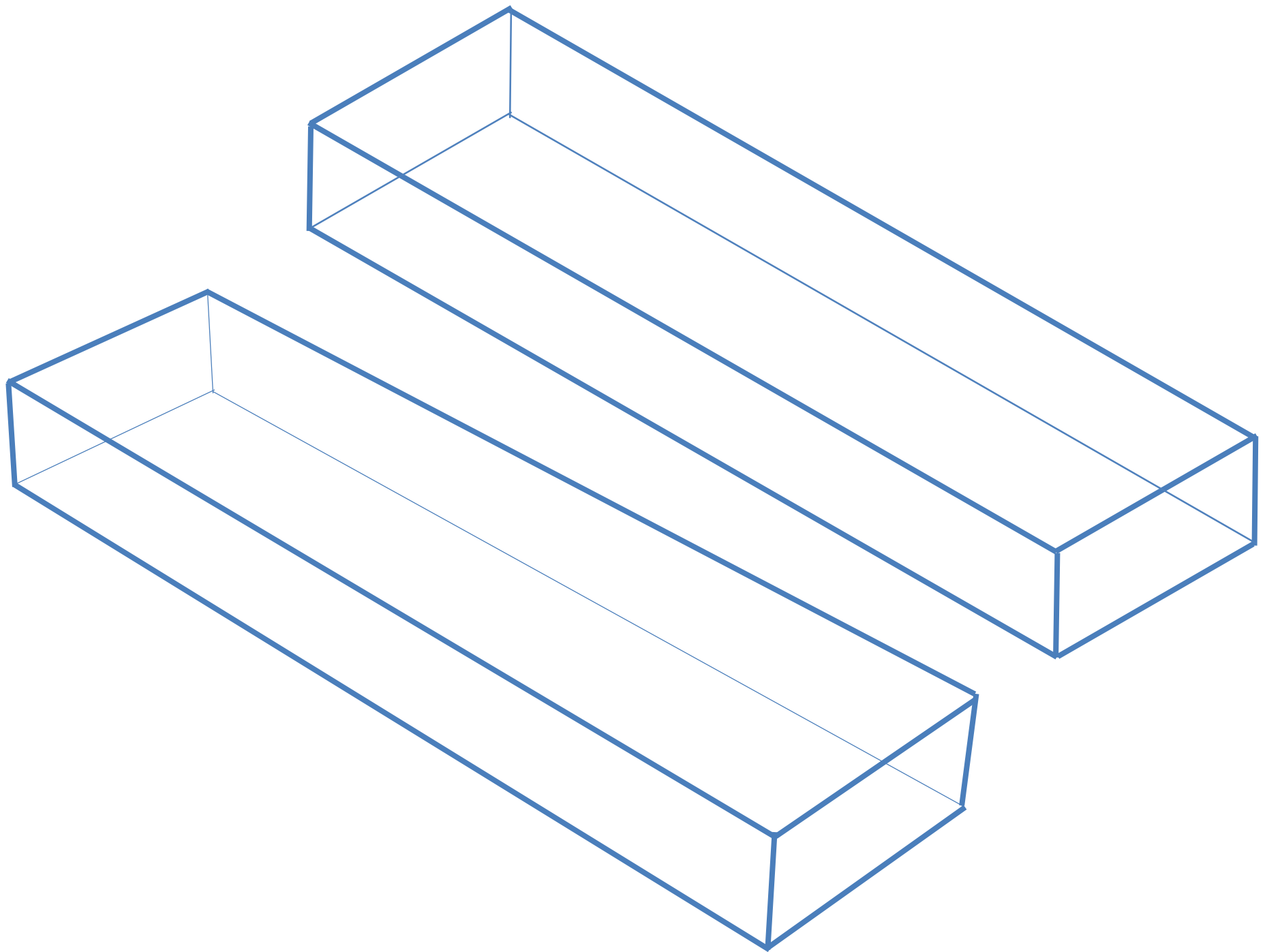


RICOH

# VORMGEVING BASIS

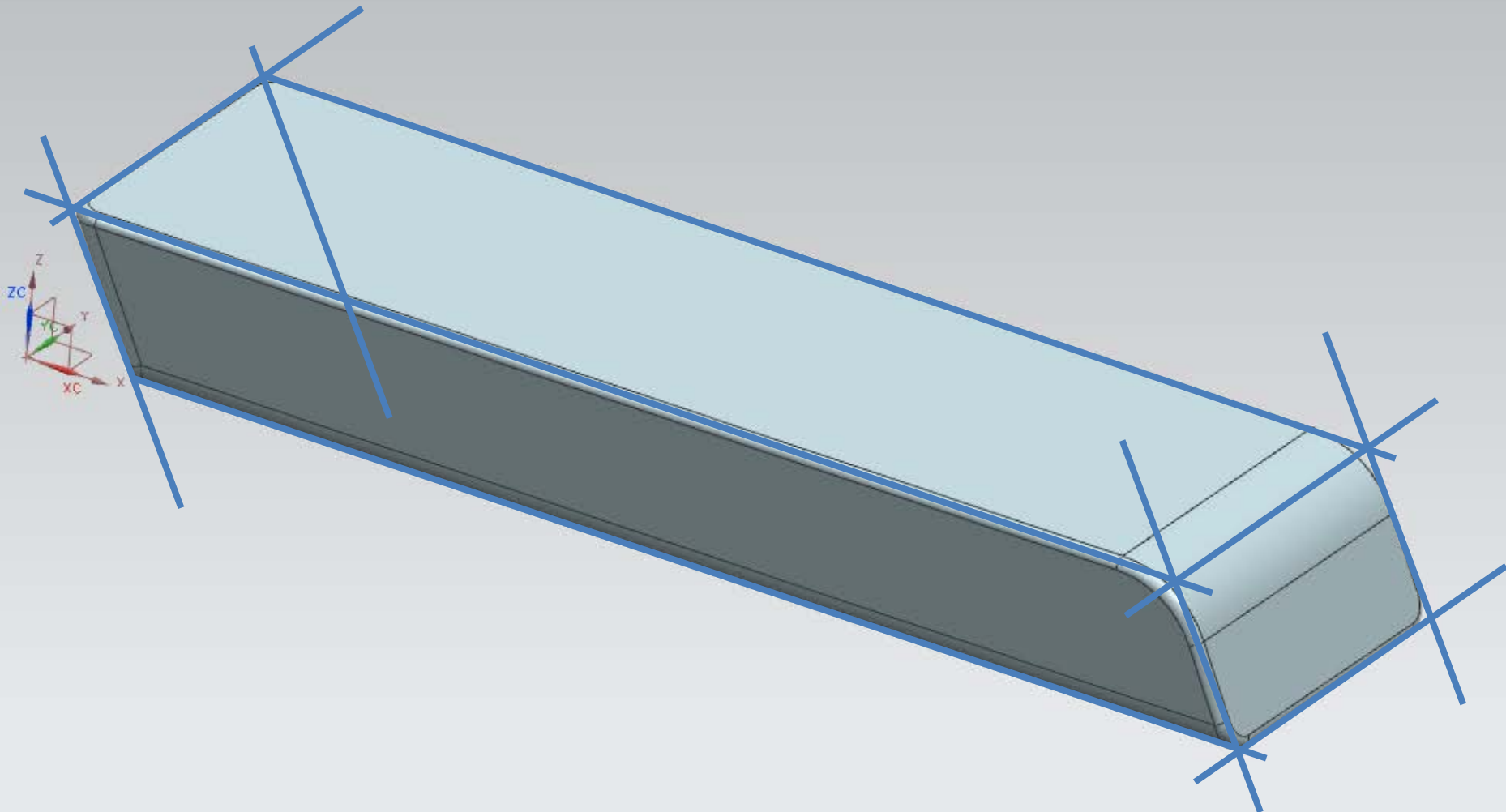
TWEEDE generatie





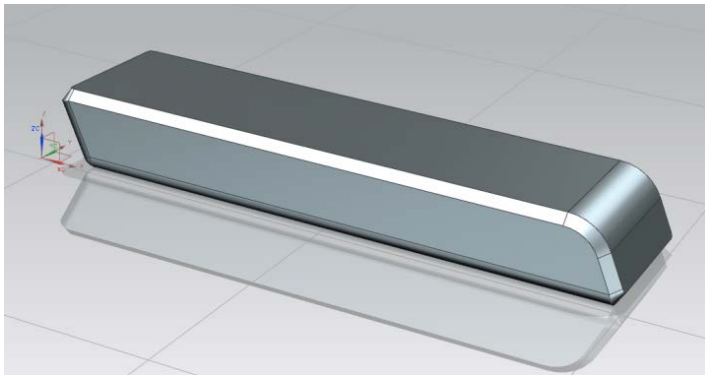
# VORMGEVING BASIS

TWEEDE generatie



# VORMGEVING BASIS

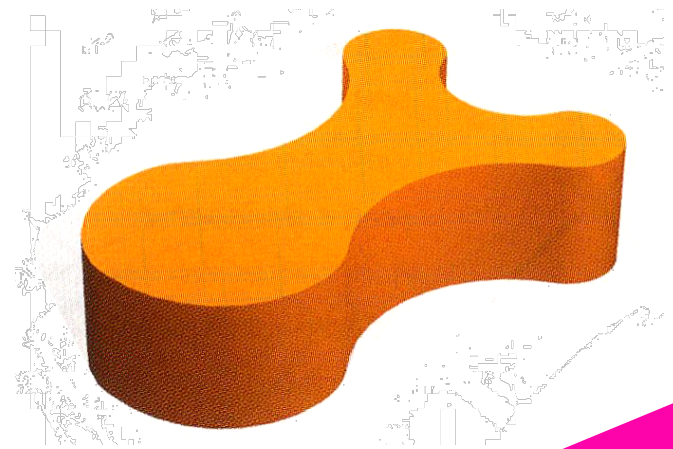
TWEEDE generatie



# VORMGEVING BASIS

TWEEDE generatie

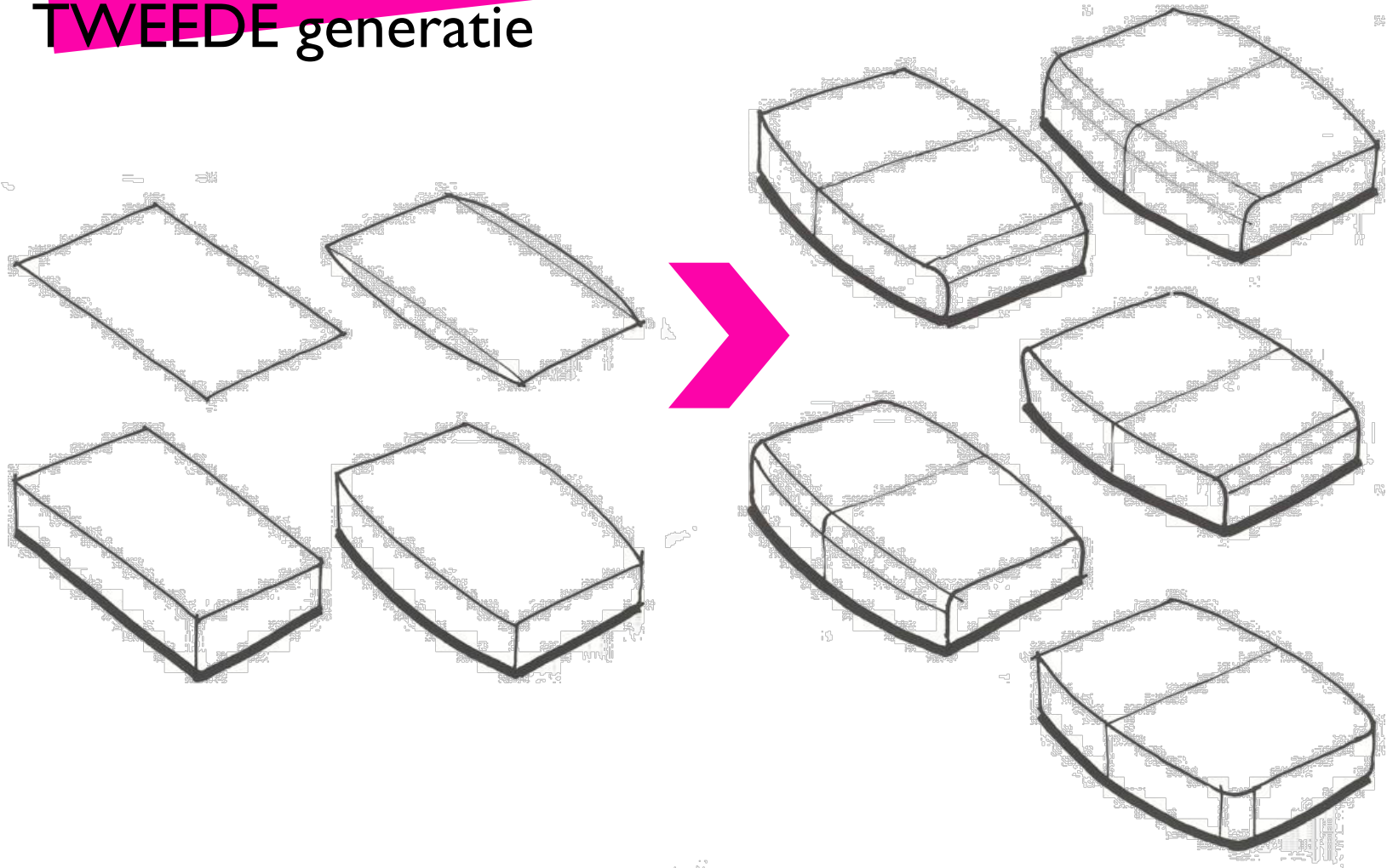
*Tweede techniek : Eén of meerdere rechte ribben van een volume vervangen door (een) curve(n).*



*Volume is geometrische vorm of geëxtrudeerde vorm*

# VORMGEVING BASIS

TWEEDE generatie





# VORMGEVING BASIS

TWEEDE generatie

Van rechte ribbe naar curve



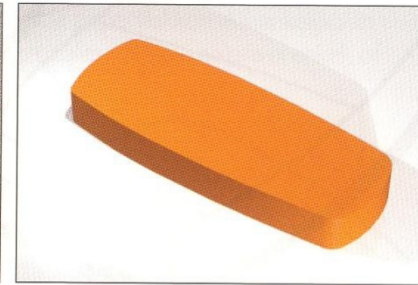
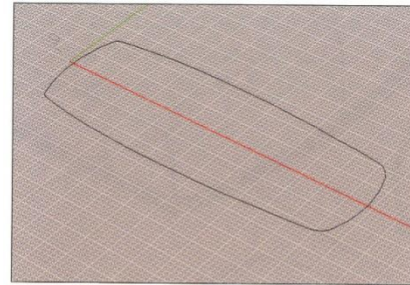
Extrusie grondvlak



Bovenvlak gekromd



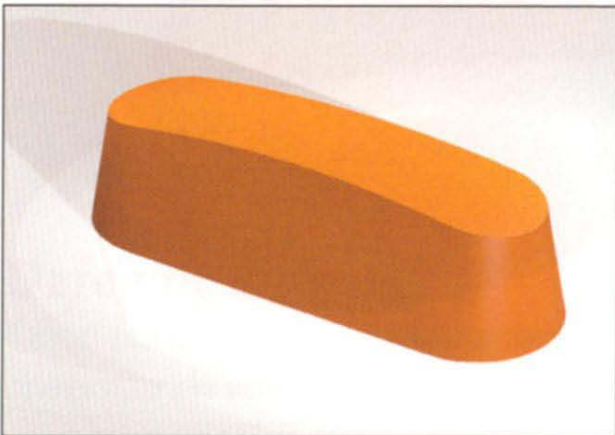
Afrondingen





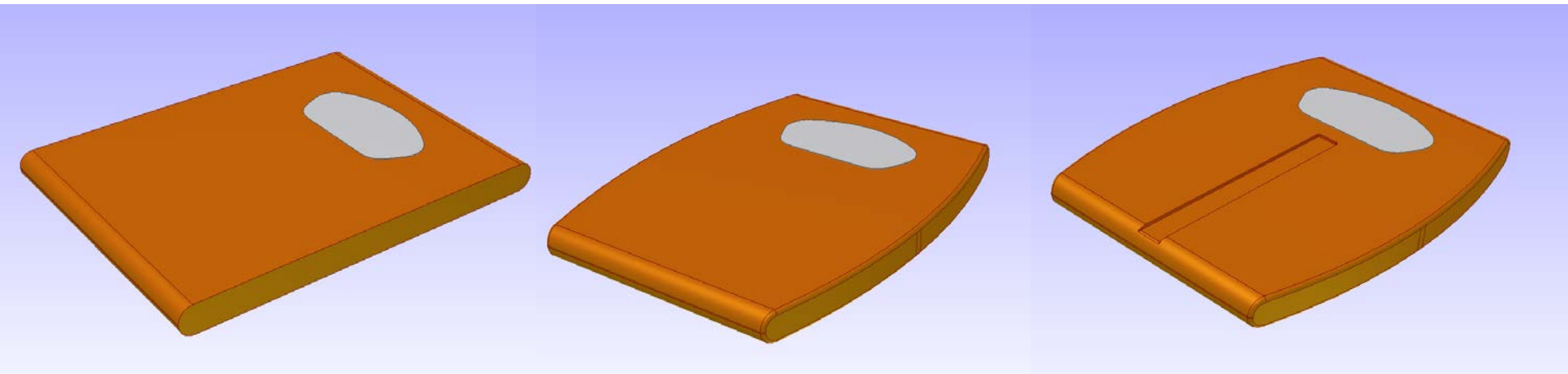
# VORMGEVING BASIS

TWEEDE generatie



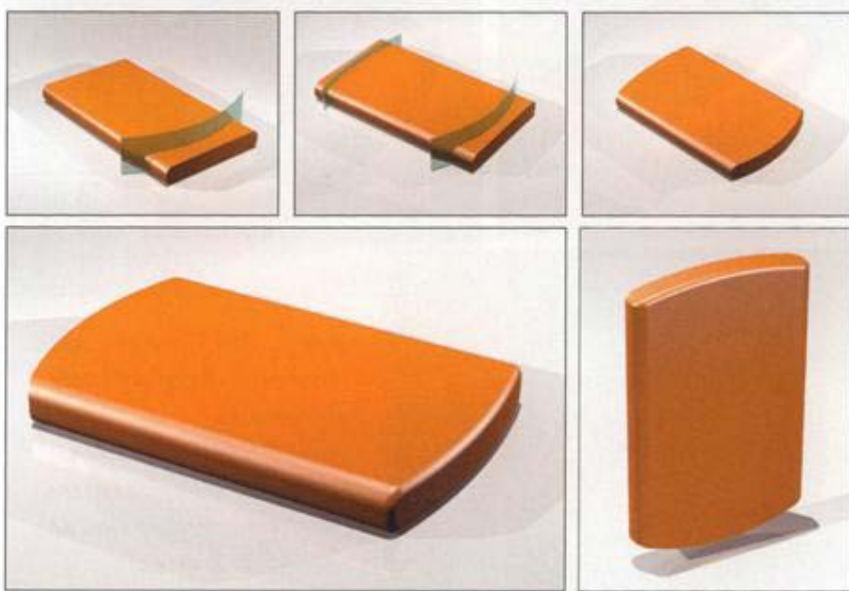
# VORMGEVING BASIS

TWEEDE generatie



# VORMGEVING BASIS

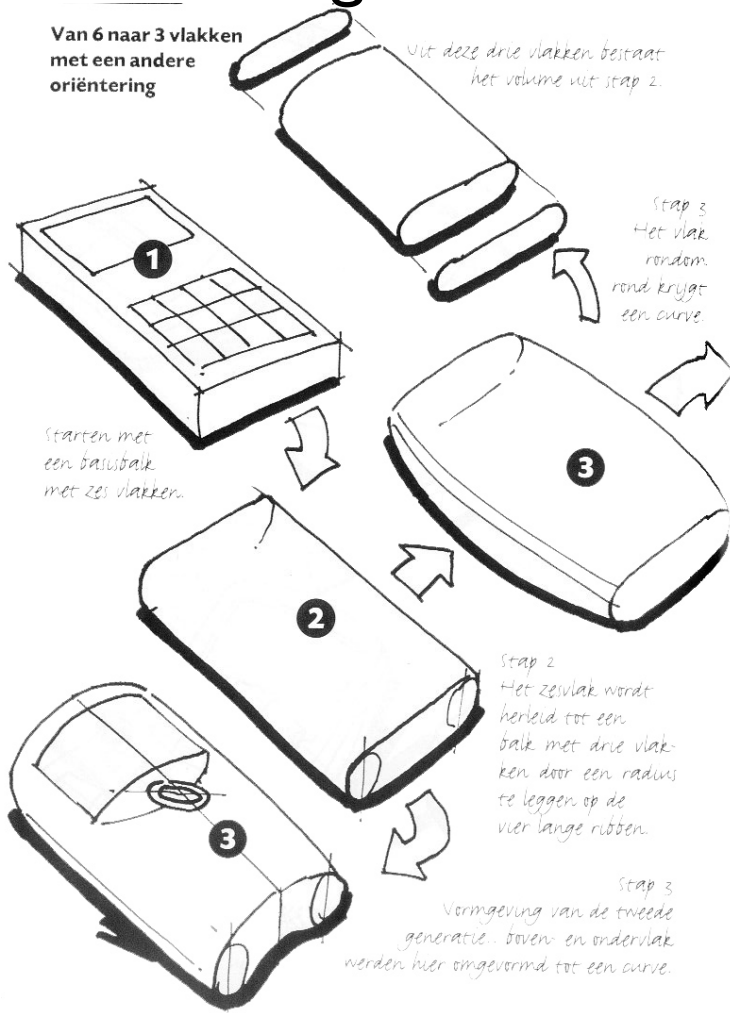
TWEEDE generatie



# VORMGEVING BASIS

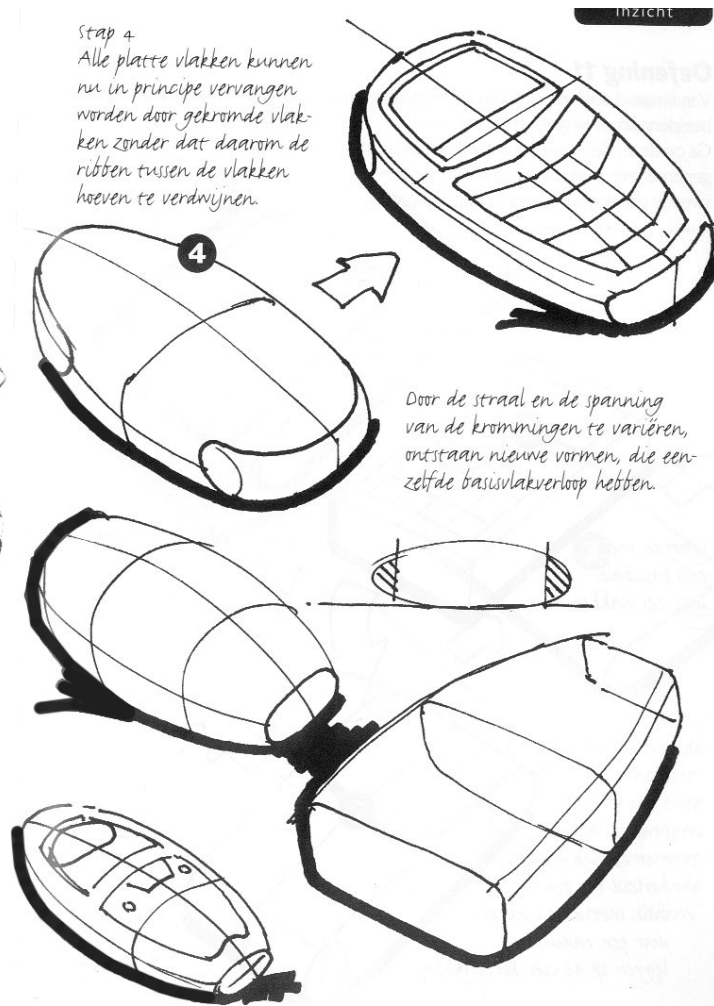
## TWEEDE generatie

Van 6 naar 3 vlakken met een andere oriëntering



Stap 3  
Vormgeving van de tweede generatie: boven- en ondervlak werden hier omgevormd tot een curve.

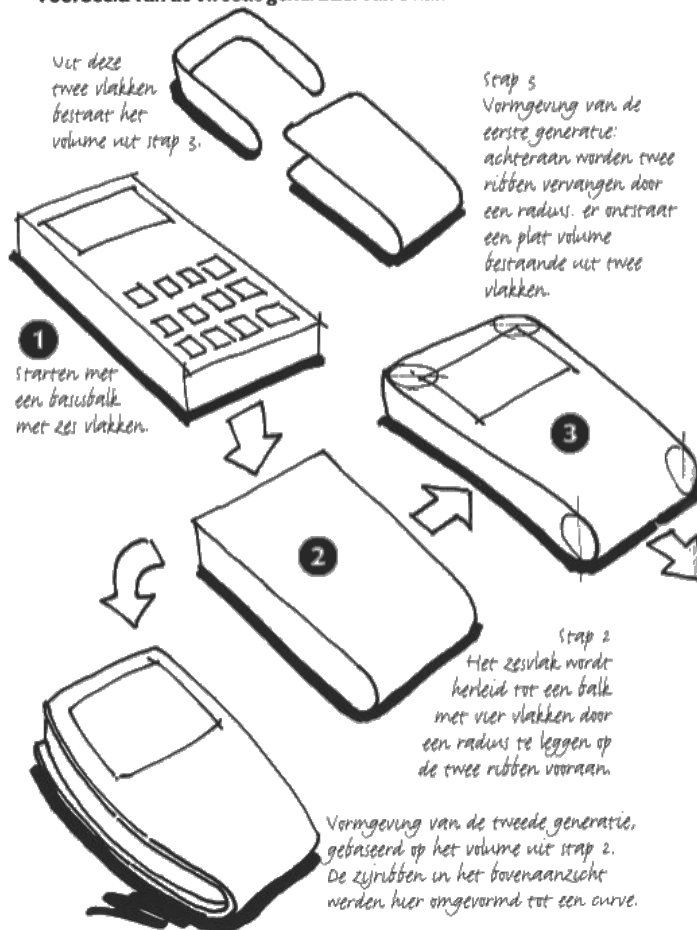
Stap 4  
Alle platte vlakken kunnen nu in principe vervangen worden door gekromde vlakken zonder dat daarom de ribben tussen de vlakken hoeven te verdwijnen.



# VORMGEVING BASIS

## TWEEDE generatie

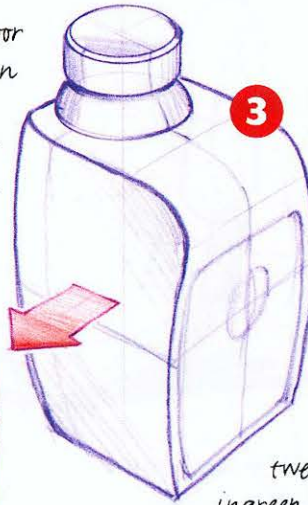
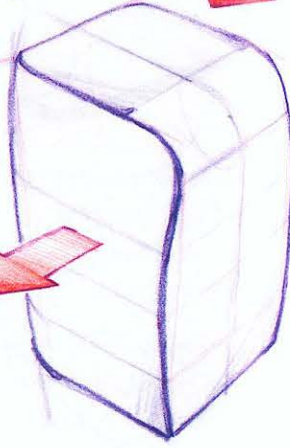
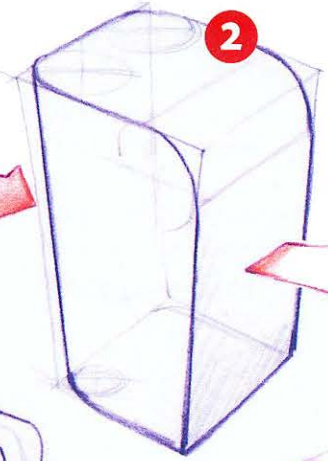
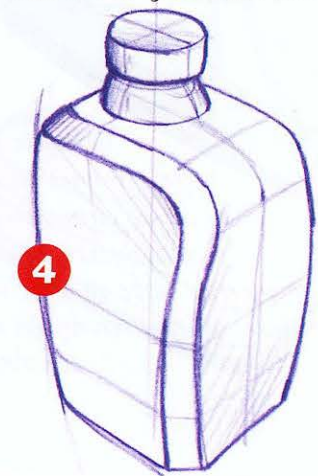
Voorbeeld van de tweede generatie: van 6 naar 2 vlakken





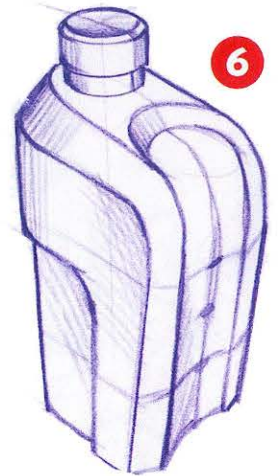
# **Voorbeeld van vormgeving van de tweede generatie**

Als startvolume voor de vormgeving van een vloeistofcontainer wordt geen balk maar een trapezoid genomen (1). Als eerste ingreep worden enkele ribben vervangen door een radius. Zo ontstaat een vormgeving van de eerste generatie: een volume dat bestaat uit 3 vlakken (2).



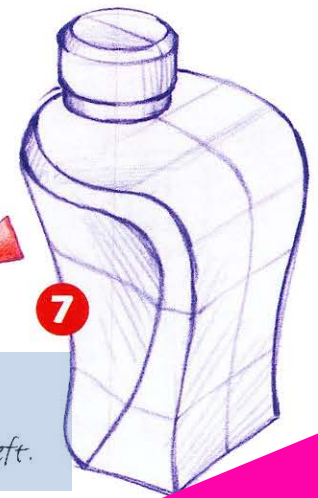
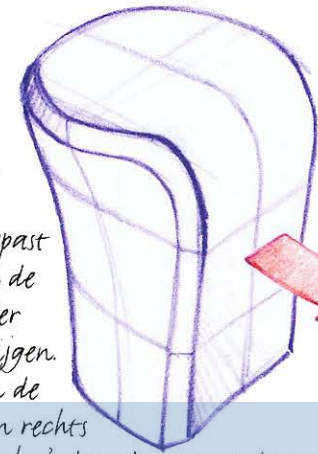
In een tweede fase kan deze vorm verder evolueren tot een vormgeving van de tweede generatie: als eerste ingreep werden de rechte ribben vervangen door een radius (3), nadien werd deze ribbe vervangen door een schuin vlak (4).

Bij dit uitgewerkte voorbeeld van de fles worden de afsluitdoppen slechts schematisch aangeduid, en niet in vorm gedetailleerd.



Het kan ook zo: eerst de ribbe van vorm 2 vervangen door een schuin vlak, en nadien verder manipuleren: door sneden te maken en vlakken toe te voegen (5) en (6), of zoals hieronder door de rechte ribben te vervangen door curven (7).

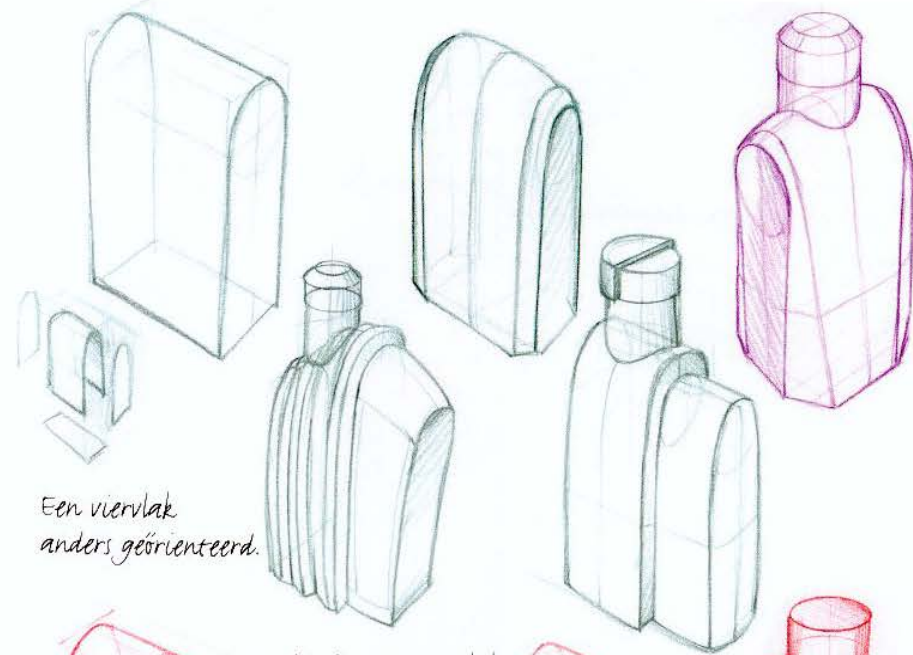
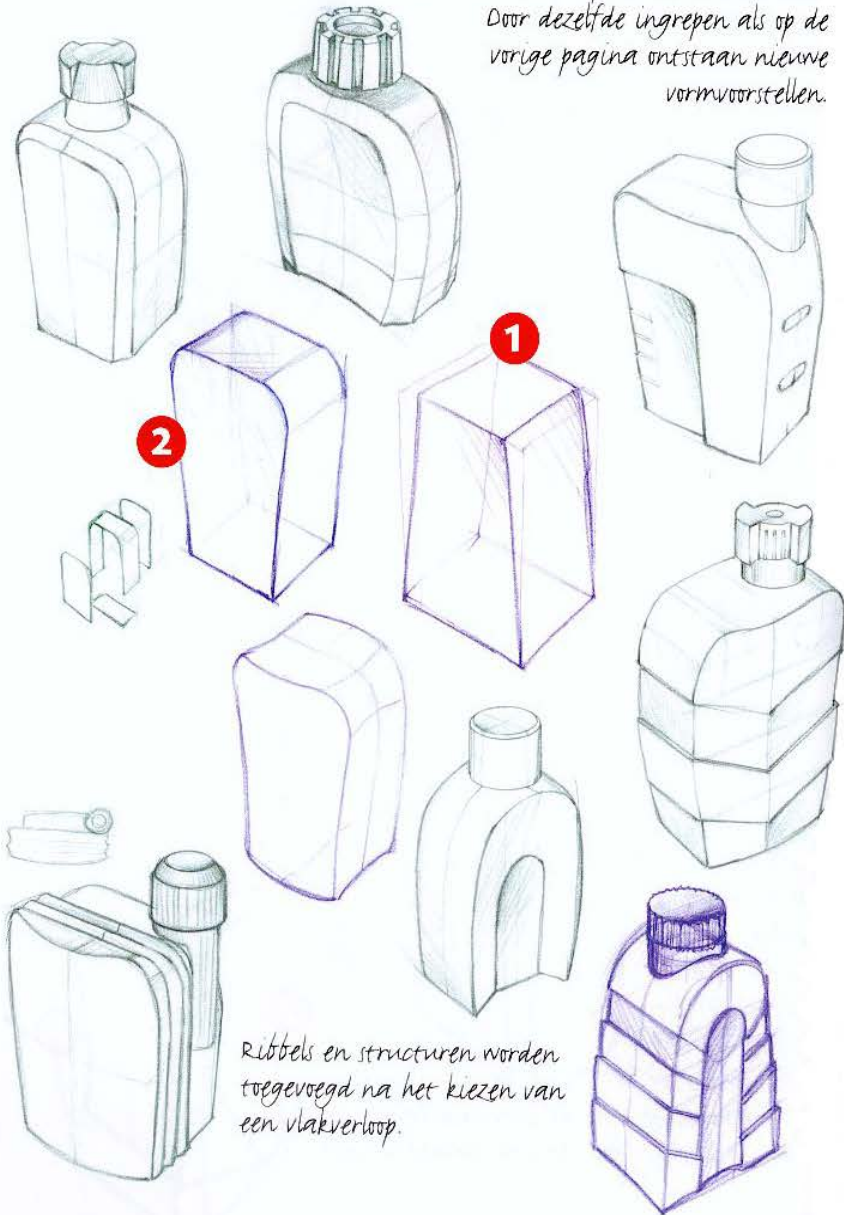
Afhankelijk van welke curven toegepast worden, kan de fles een ander karakter krijgen. De vorm van de fles bovenaan rechts oogt 'technischer' dan de vorm onderaan rechts, die eerder een 'beauty' karakter heeft.





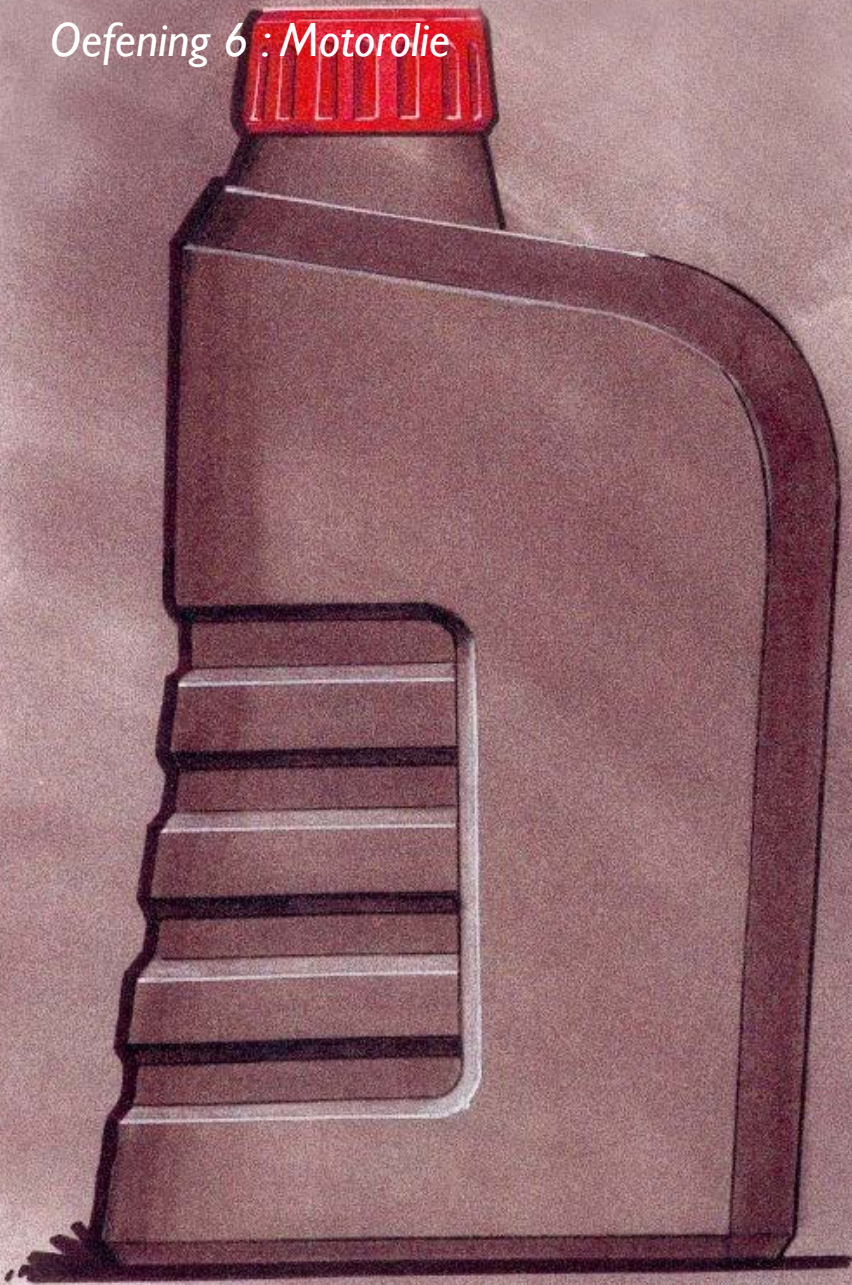
De vormalternatieven voor de vloeistofcontainer op deze pagina zijn gebaseerd op een ander vlakverloop dan op de vorige pagina.

Het basisvlakverloop is hier een viervlak. Door dezelfde ingrepen als op de vorige pagina ontstaan nieuwe vormvoorstellen.





Oefening 6 : Motorolie





Ontwerp een bidon voor

melk  
5 liter water  
slaolie

