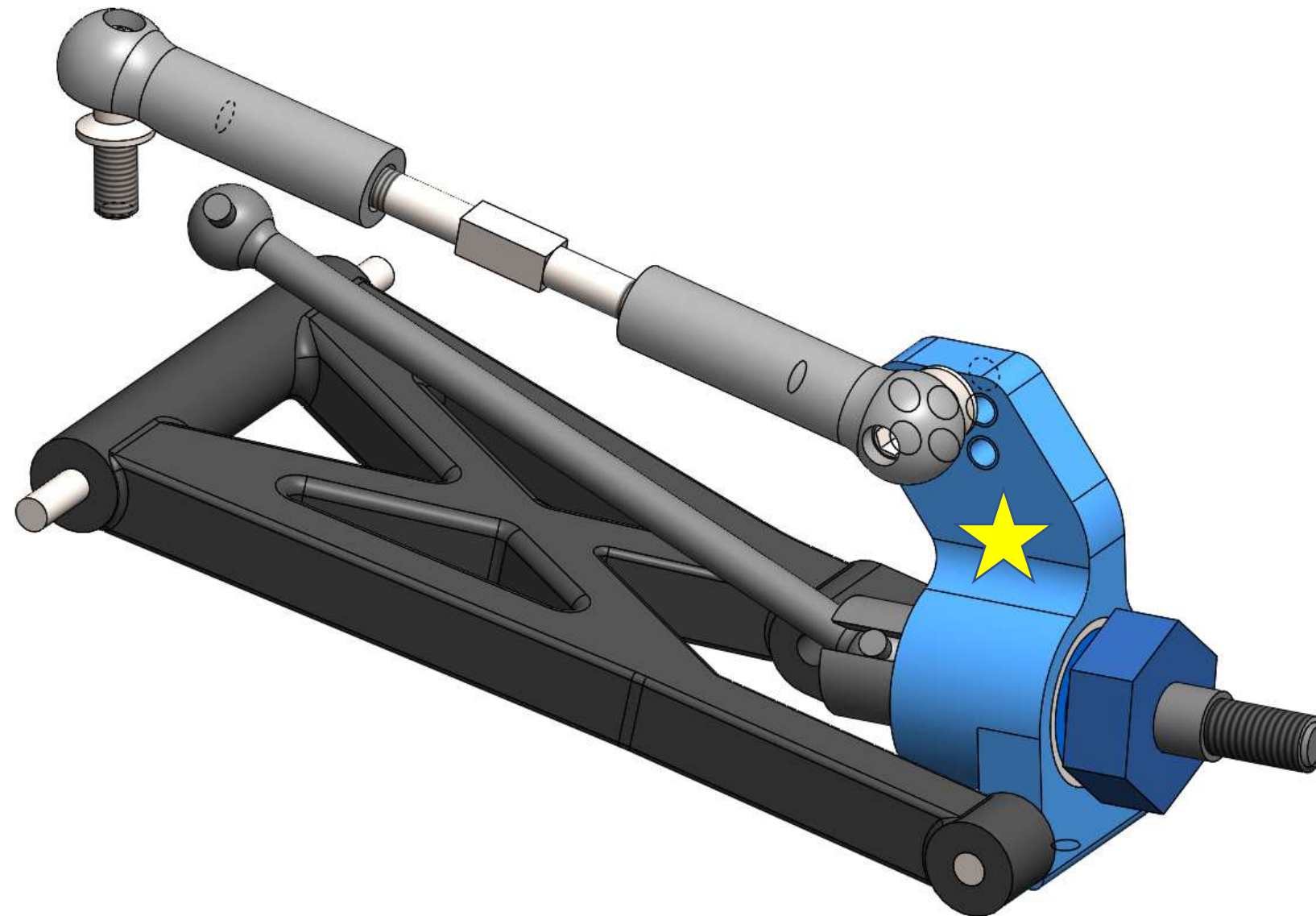


SOLIDWORKS Perusteet, osamalli



AIPWORKS

Jouni Jalkanen

3D-Kaveri

010 325 6160

jouni.jalkanen@aipworks.fi

www.aipworks.fi

AIPWORKS

Jesse Kontio

3D-Kaveri

010 325 6160

jesse.kontio@aipworks.fi

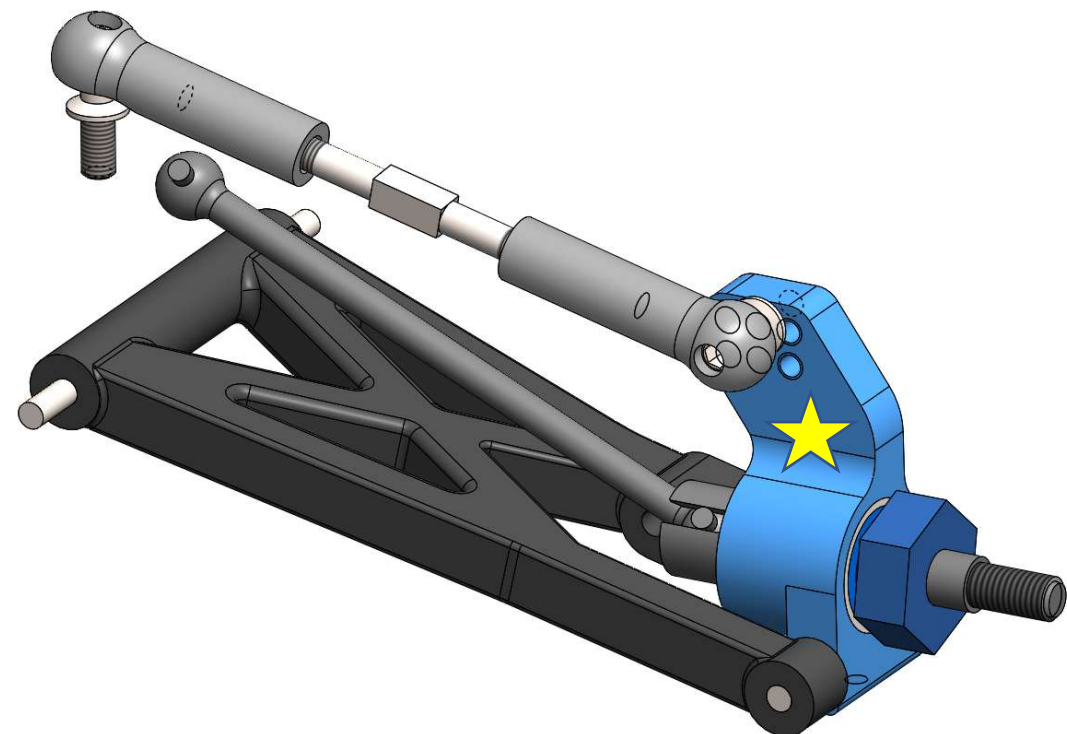
www.aipworks.fi



Mallinnusharjoitus: RC-auton takanapa

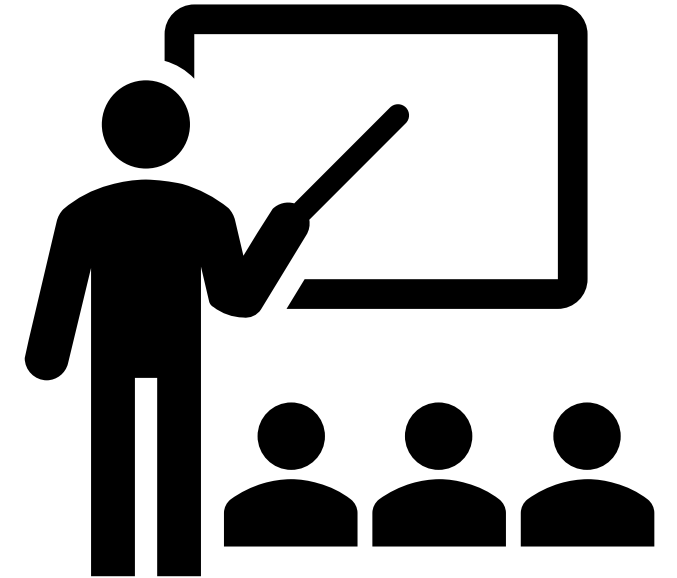
- **Käyttöliittymä**

- Part Template, osamallinnusnäytin avaaminen
- Toolbars, työkalupalkit
- Shortcut Bars, pikavalikot
- Feature Tree, piirrehistoria
- Shortcut Keys, pikanäppäimet
- Command Manager, työkalupalkkien näkyvyys
- View (Heads-Up), mallin hallinta
- Task Pane, tehtäväpaneeli
- Help, apuvalikko
- Text Menus, tekstivalikot
- System Options → Sketch, sketsin asetukset



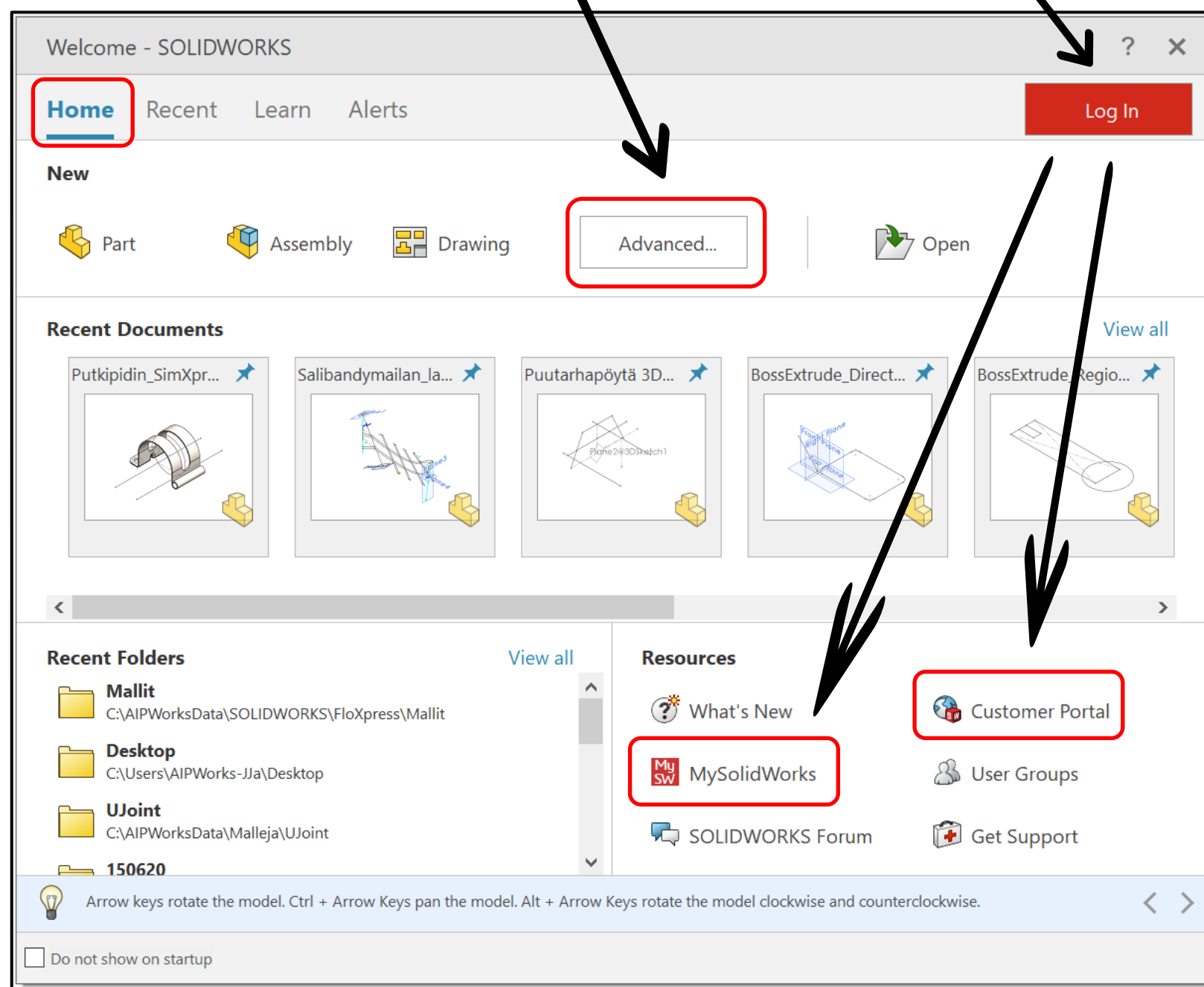
- **Mallinnus**

- Extruded Boss/Base, tilavuuden lisääminen
- Sketch Numeric Input, numeraalisen piirron aktivointi
- Line, viiva
- Tangent Arc, tangentiaalinen kaari
- Relations, geometriaehdot
- Rectangle, suorakaide
- Smart Dimension, älykäs mitoitus
- Fillet, pyöristykset
- Combine, tilavuuksien yhdistäminen
- Extruded Cut, tilavuuden poistaminen
- Revolved Cut, pyöräytetyn tilavuuden poistaminen
- Chamfer, viiste
- Hole Wizard, erilaiset reikäpiirteet
- Point, referenssipiste
- Linear Pattern, lineaarinen piirreryhmä
- Edit Material, materiaalikirjasto
- Mass Properties, massan laskenta
- Appearances, tekstuurikirjasto
- Instant3D, mallin editointi

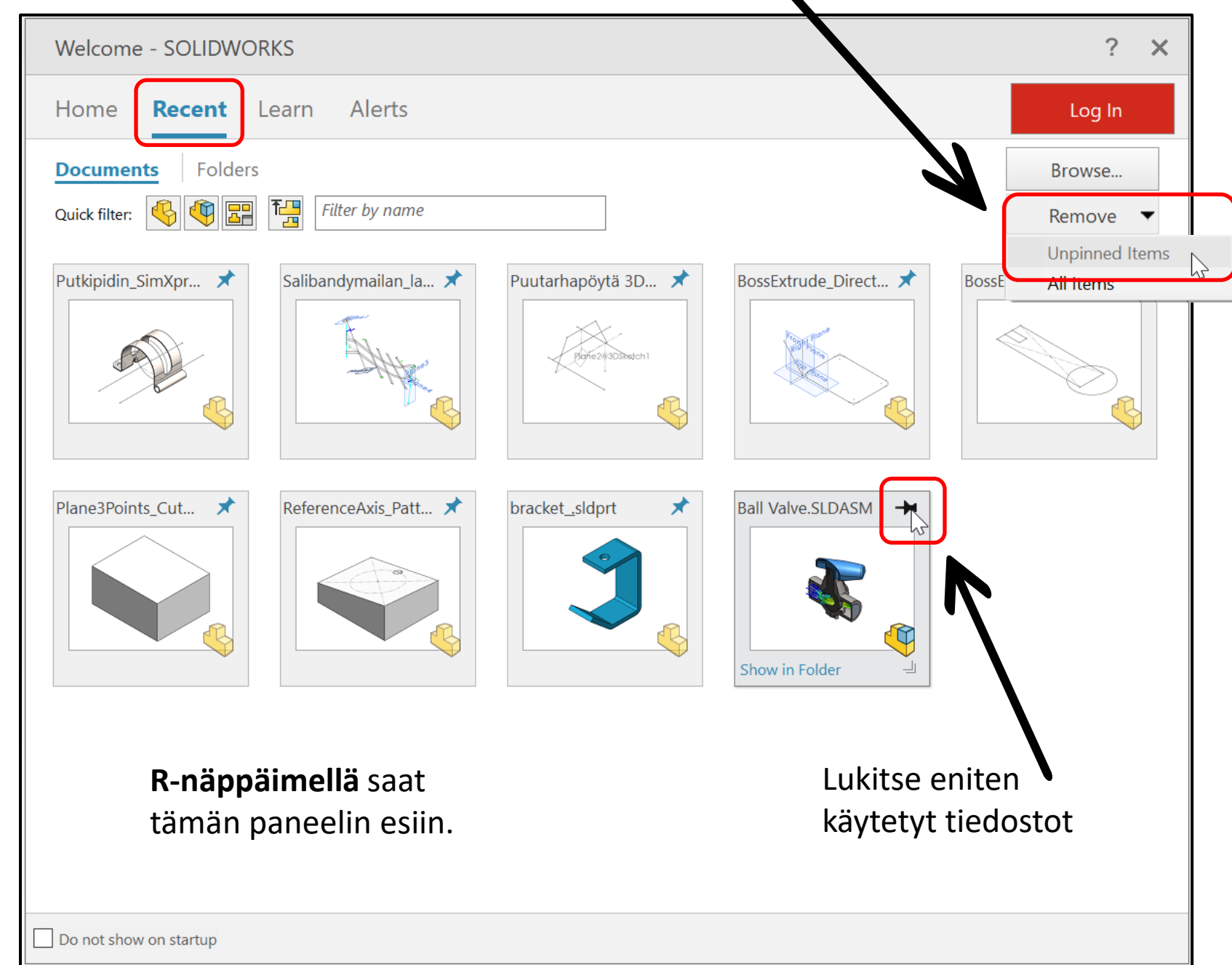


Kaikki **Template** –tiedostot näkyville

Kirjautuminen
SW portaaleihin

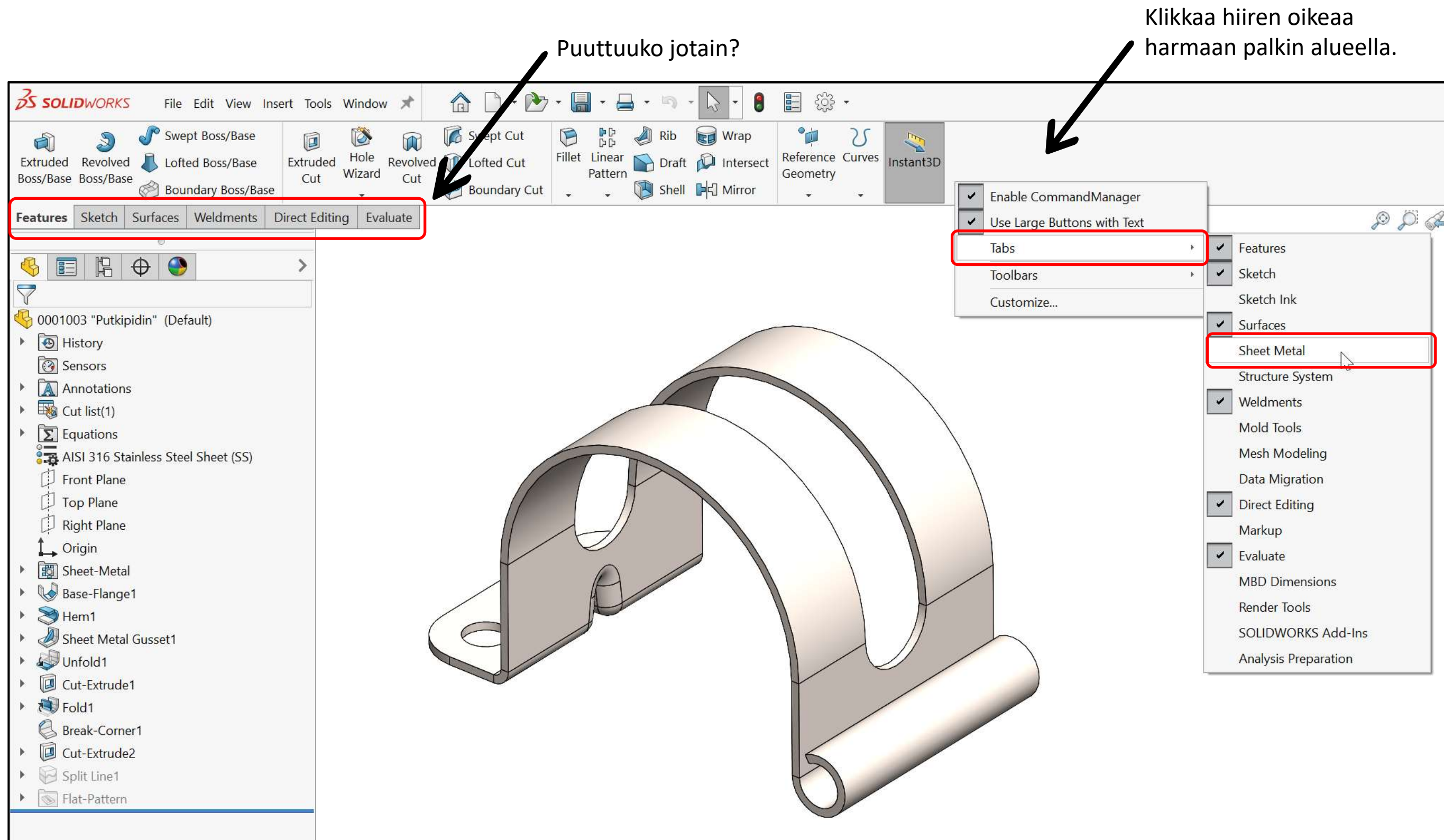


Poista tarpeettomat
tiedostot näkymästä



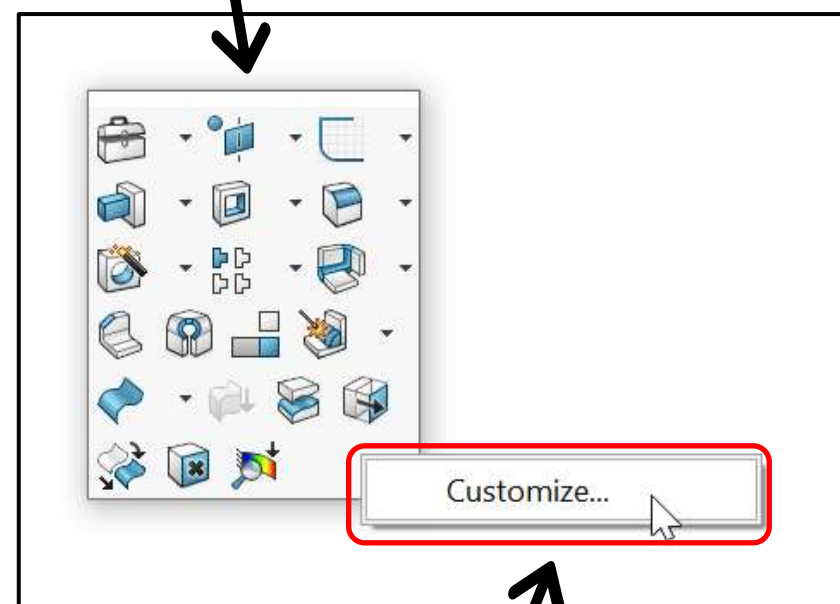
R-näppäimellä saat
tämän paneelin esiin.

Lukitse eniten
käytetyt tiedostot

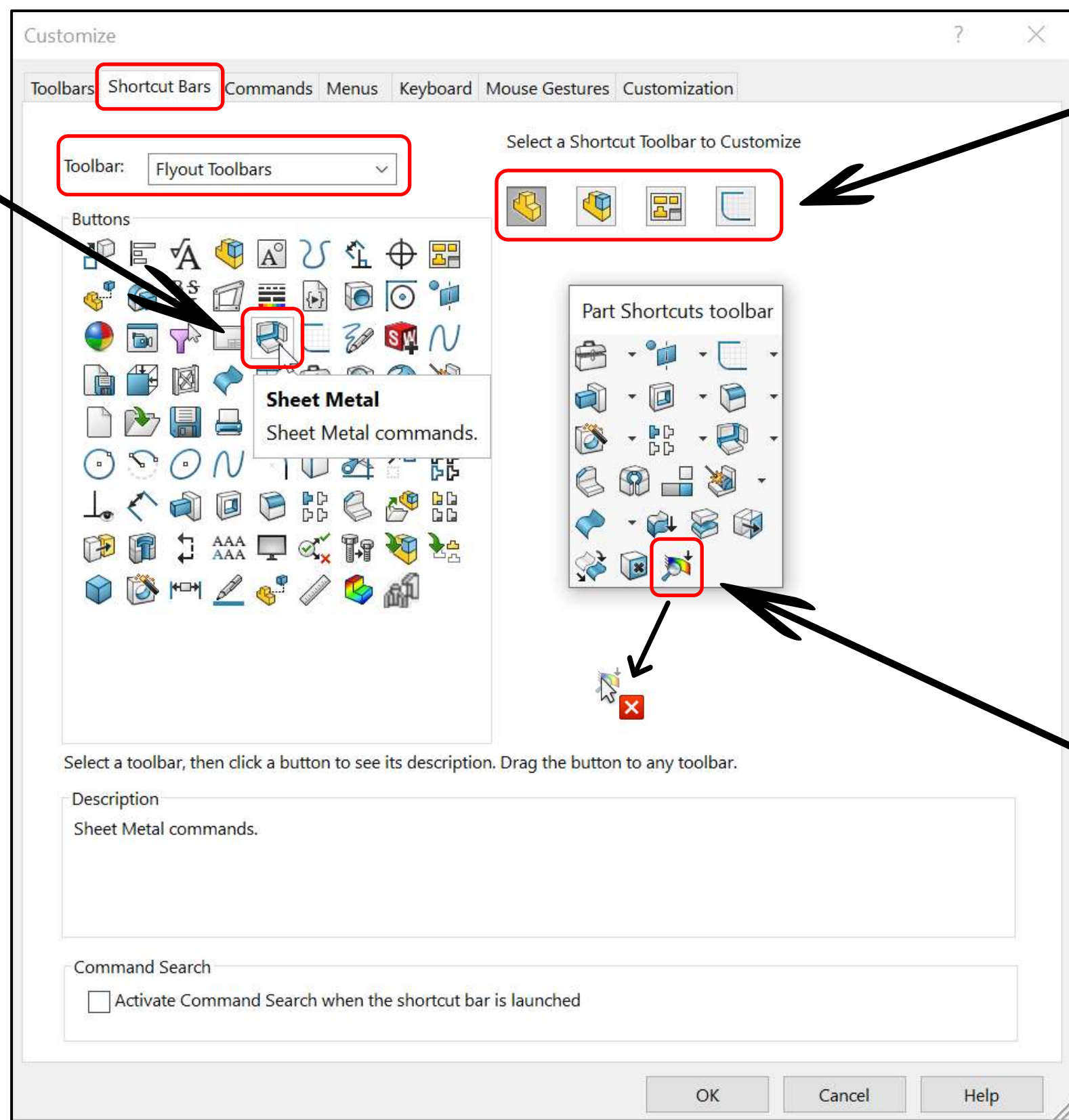


Voit lisätä pikavalikkoon kokonaisia työkaluryhmiä tai yksittäisiä toimintoja raahaamalla (drag) niitä pikavalikkoon.

Paina **S-näppäintä** grafiikka-alueella saadaksesi pikavalikon esille.



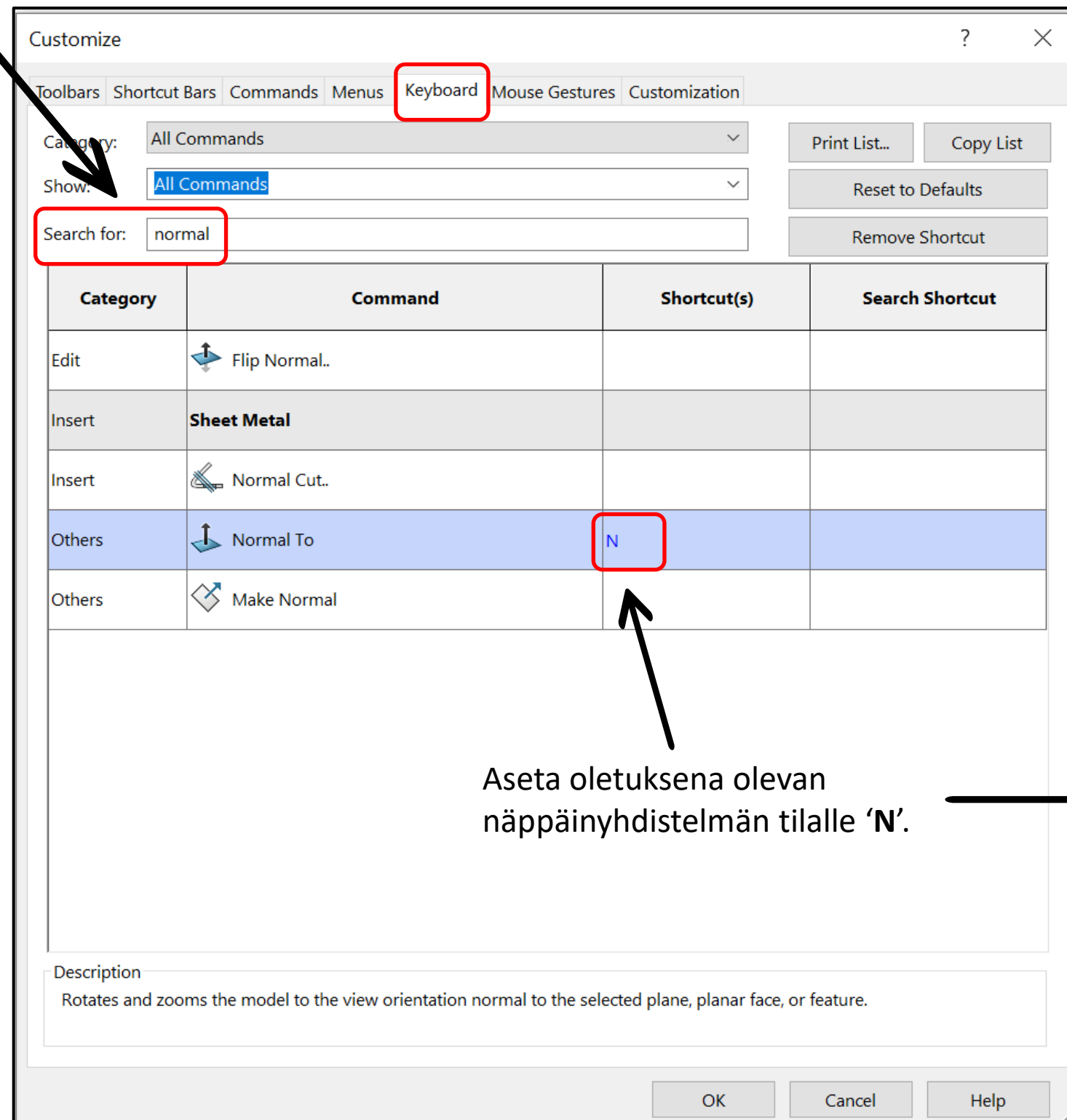
Klikkaa hiiren oikeaa päästäksesi muokkaamaan pikavalikkoa.



Pikavalikko on muokattavissa **Part, Assembly, Drawing** ja **Sketch** -kohtaisesti.

Voit poistaa tarpeettomia toimintoja raahaamalla niitä pikavalikon ulkopuolelle.

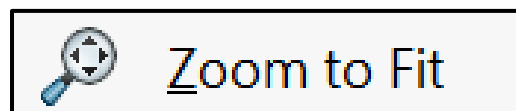
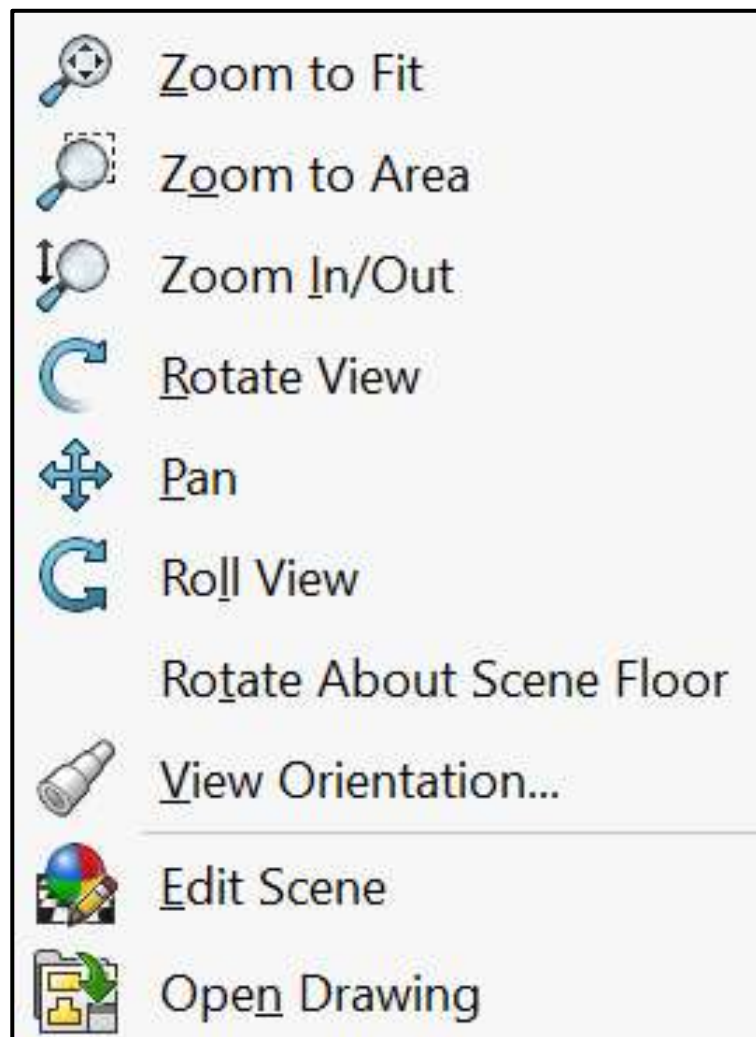
Kirjoita hakukenttään 'normal'.



Aseta oletuksena olevan
näppäinyhdistelmän tilalle 'N'.

Kyseinen näppäin on kätevä, kun halutaan
kääntää joko lähimpänä oleva tai valittu
tasopinta kohtisuoraksi näkymäksi.

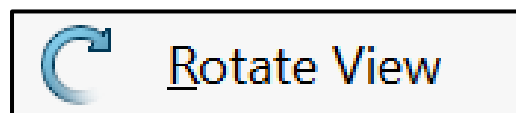
Paina **hiiren oikeaa (RMB)** grafiikka-alueella saadaksesi tämän valikon esille.



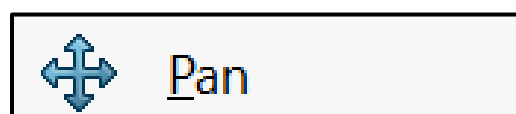
= F (mallin rajojen haku)



= Hiiren rulla (portaaton zoomaus)

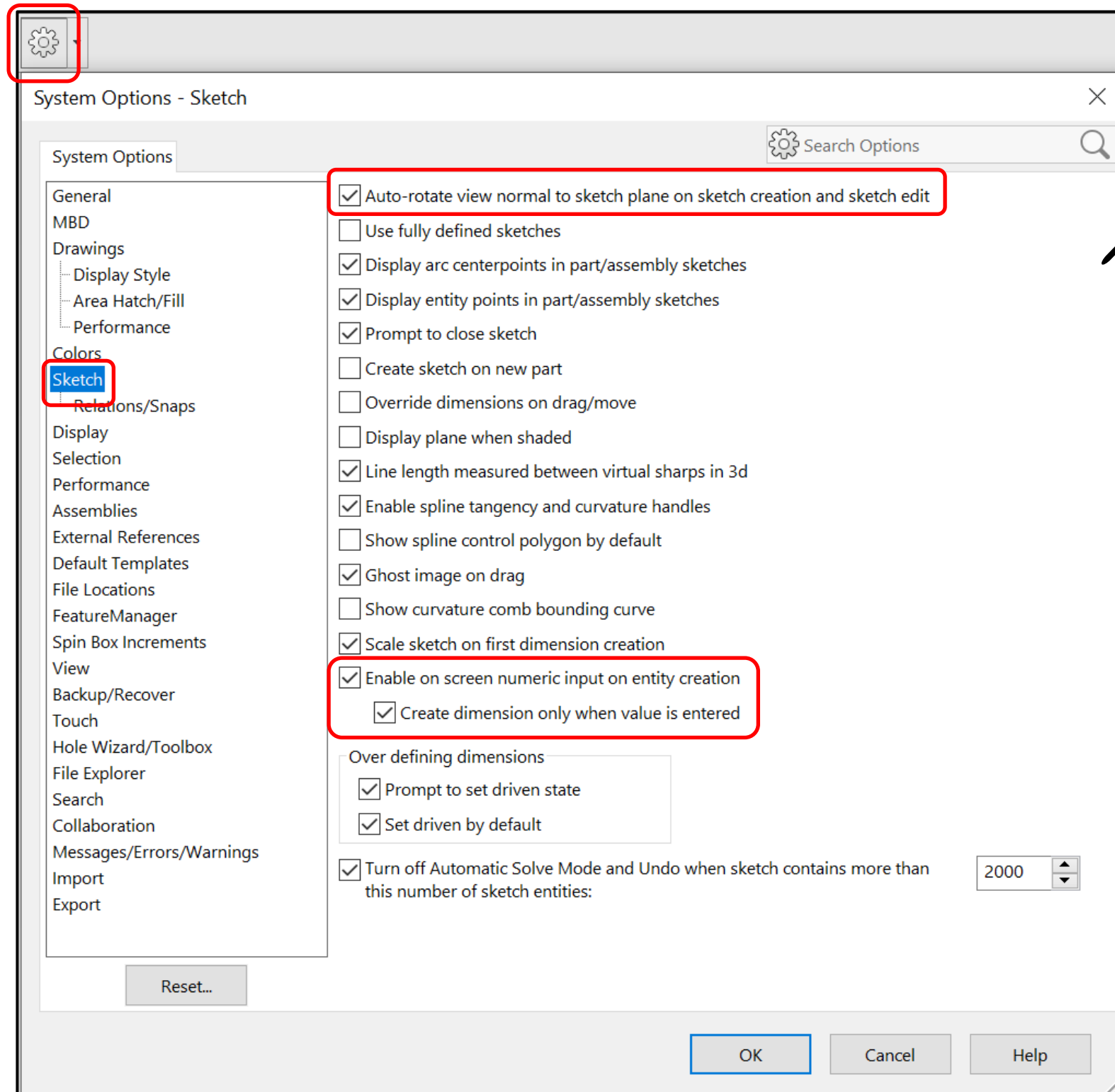


= Hiiren rulla nappina (mallin pyörittäminen)



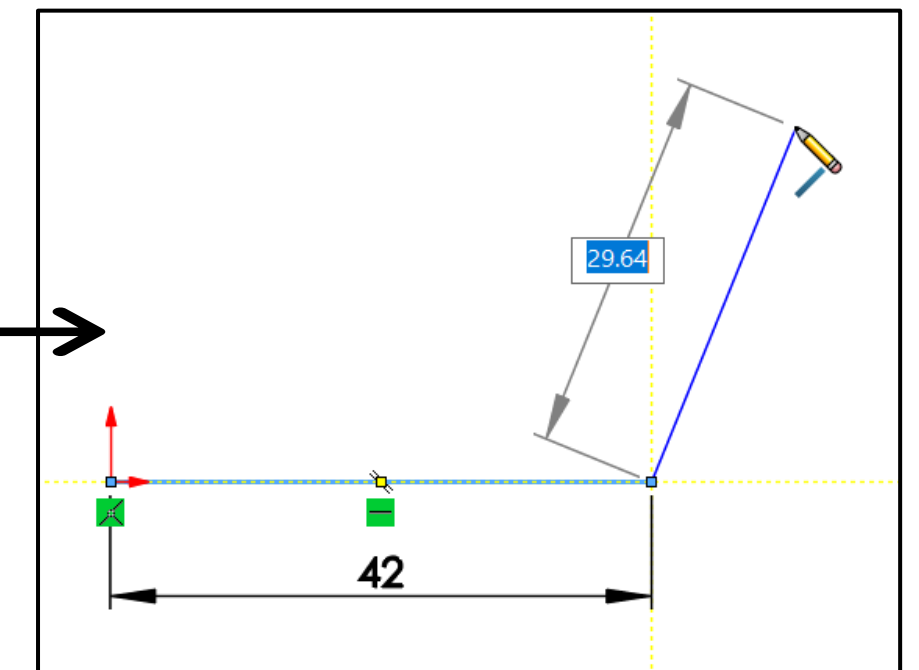
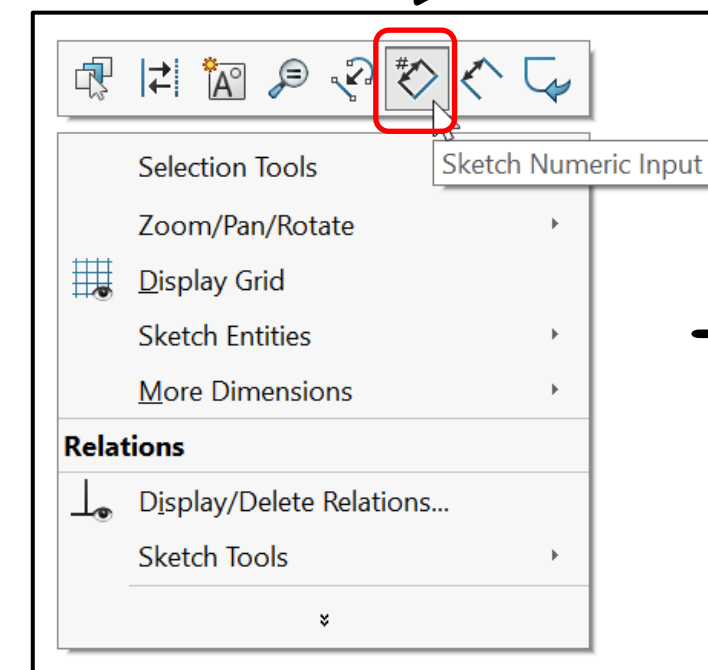
= Ctrl + hiiren rulla nappina (mallin siirtäminen)

Huom! Jos käytät ohjelmaa päivittäin, on suositeltavaa hankkia 3D-hiiri (Spacemouse).



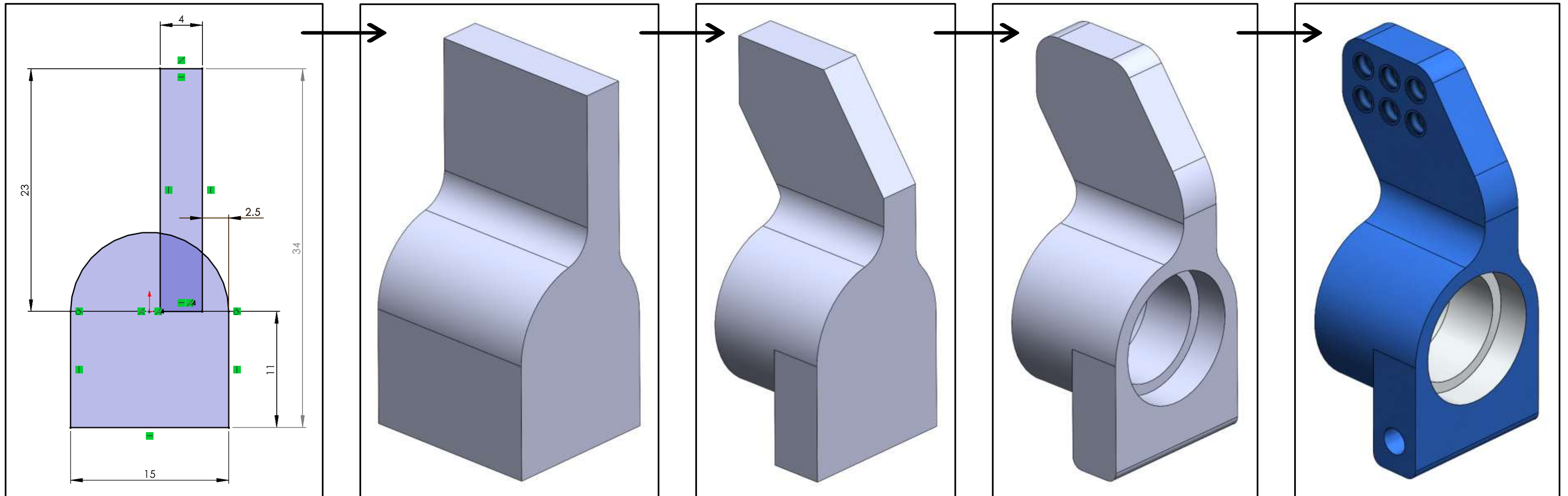
Kokeile asetettuja ominaisuuksia luomalla uusi sketsi johonkin tasoon.

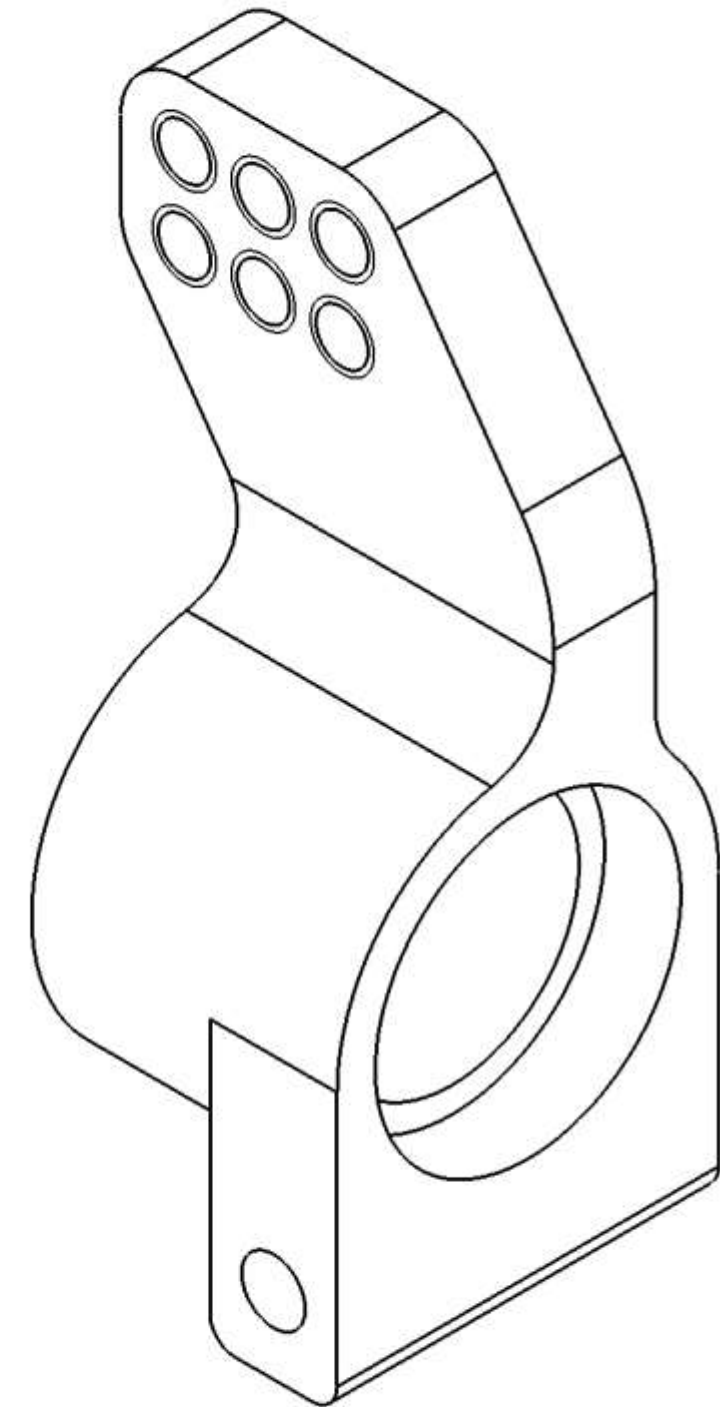
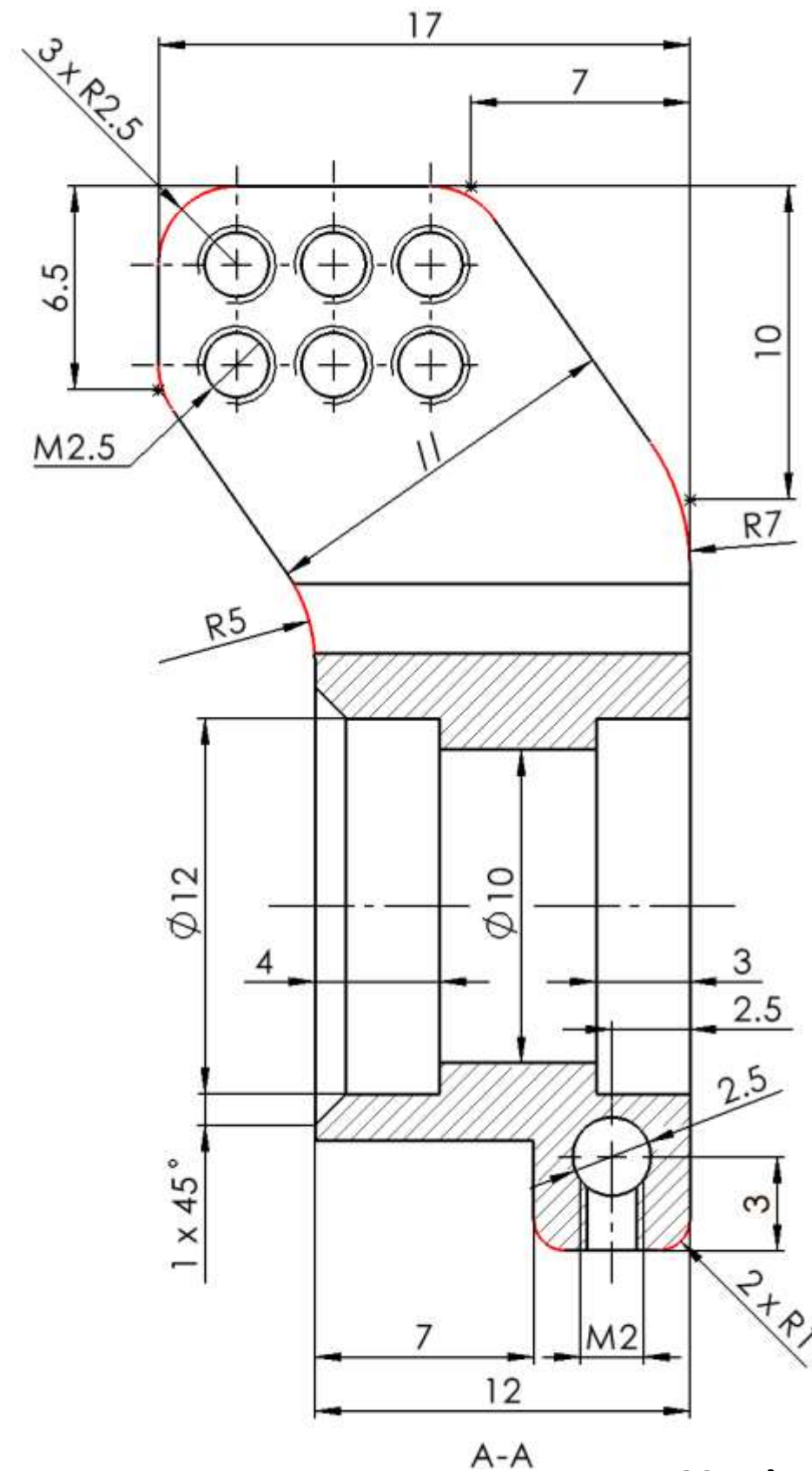
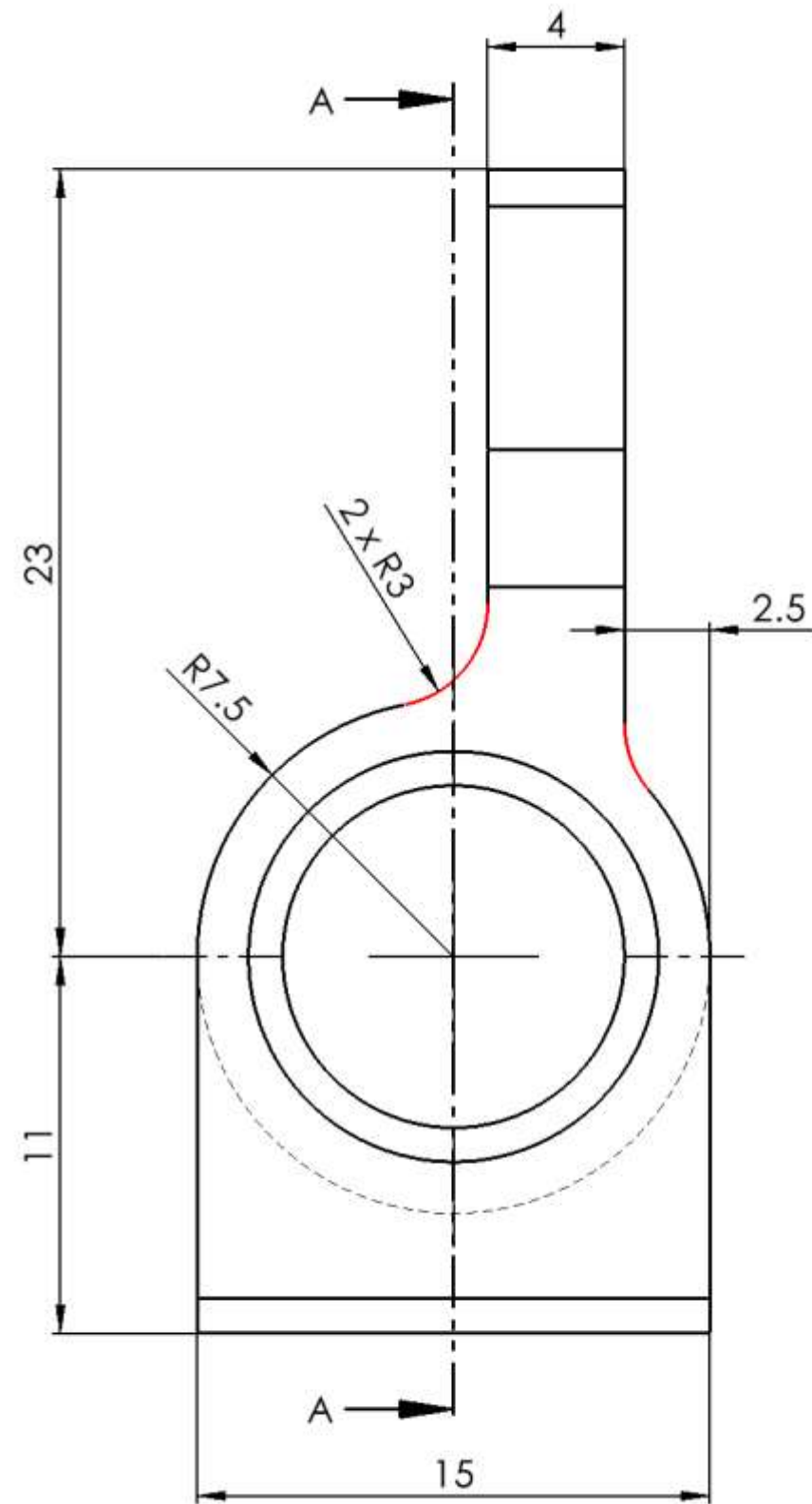
Klikkaa hiiren oikeaa ja aktivoi **Sketch Numeric Input**.



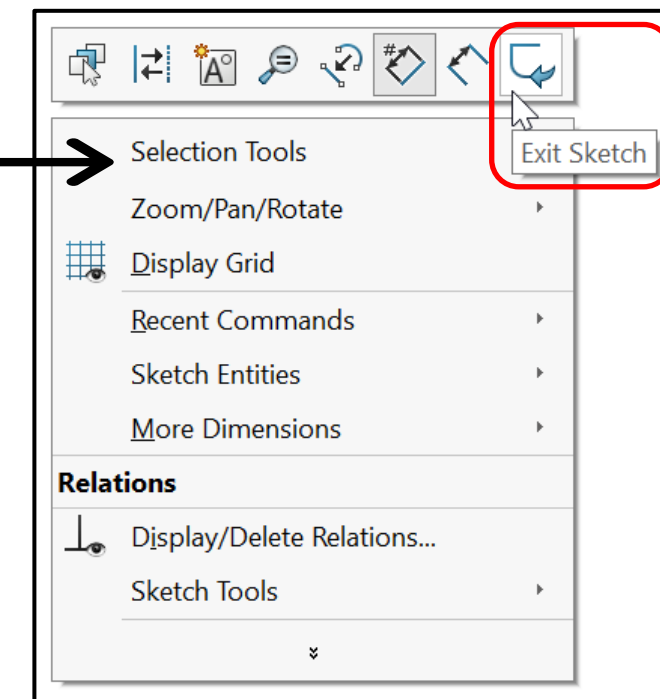
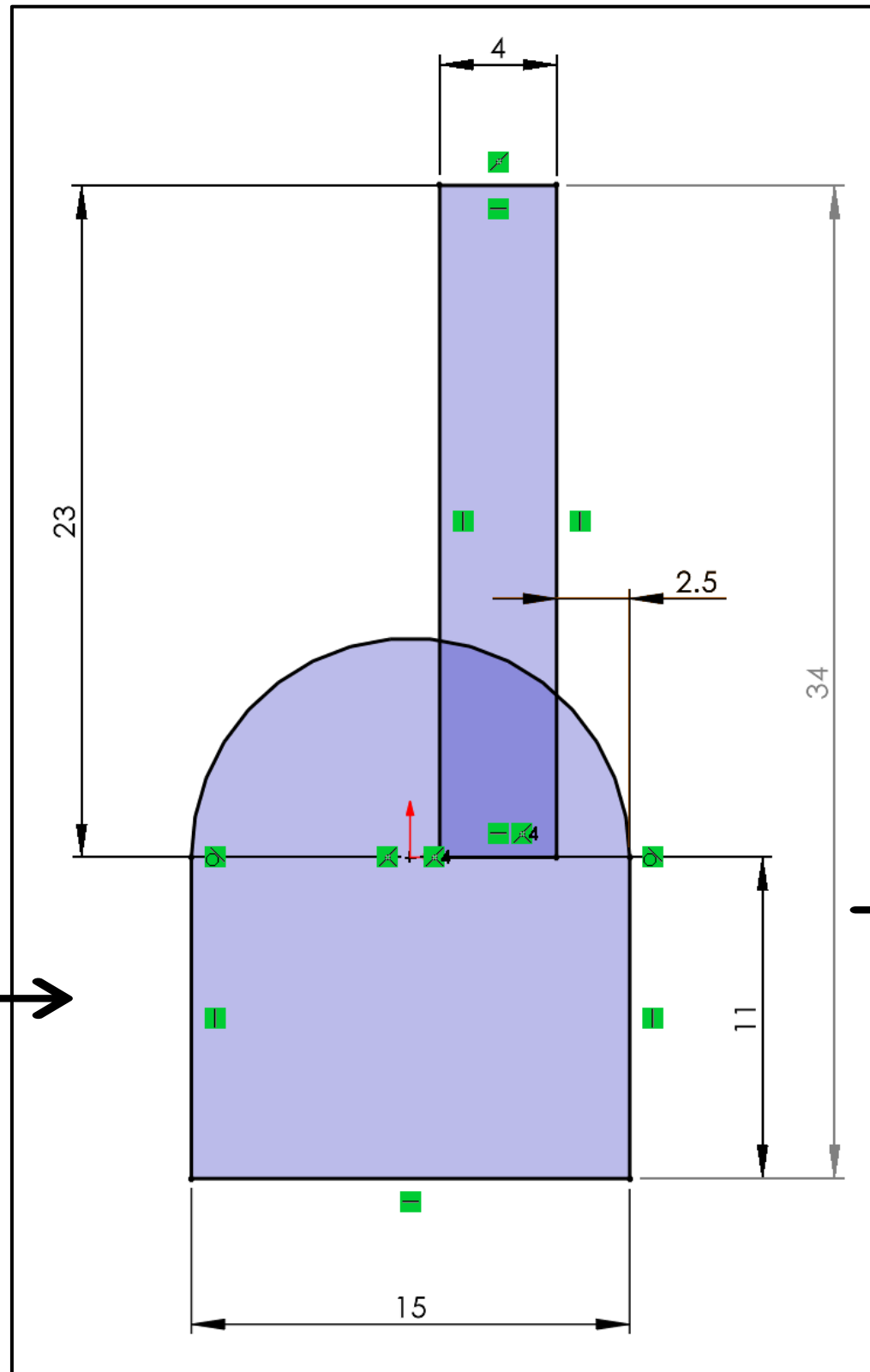
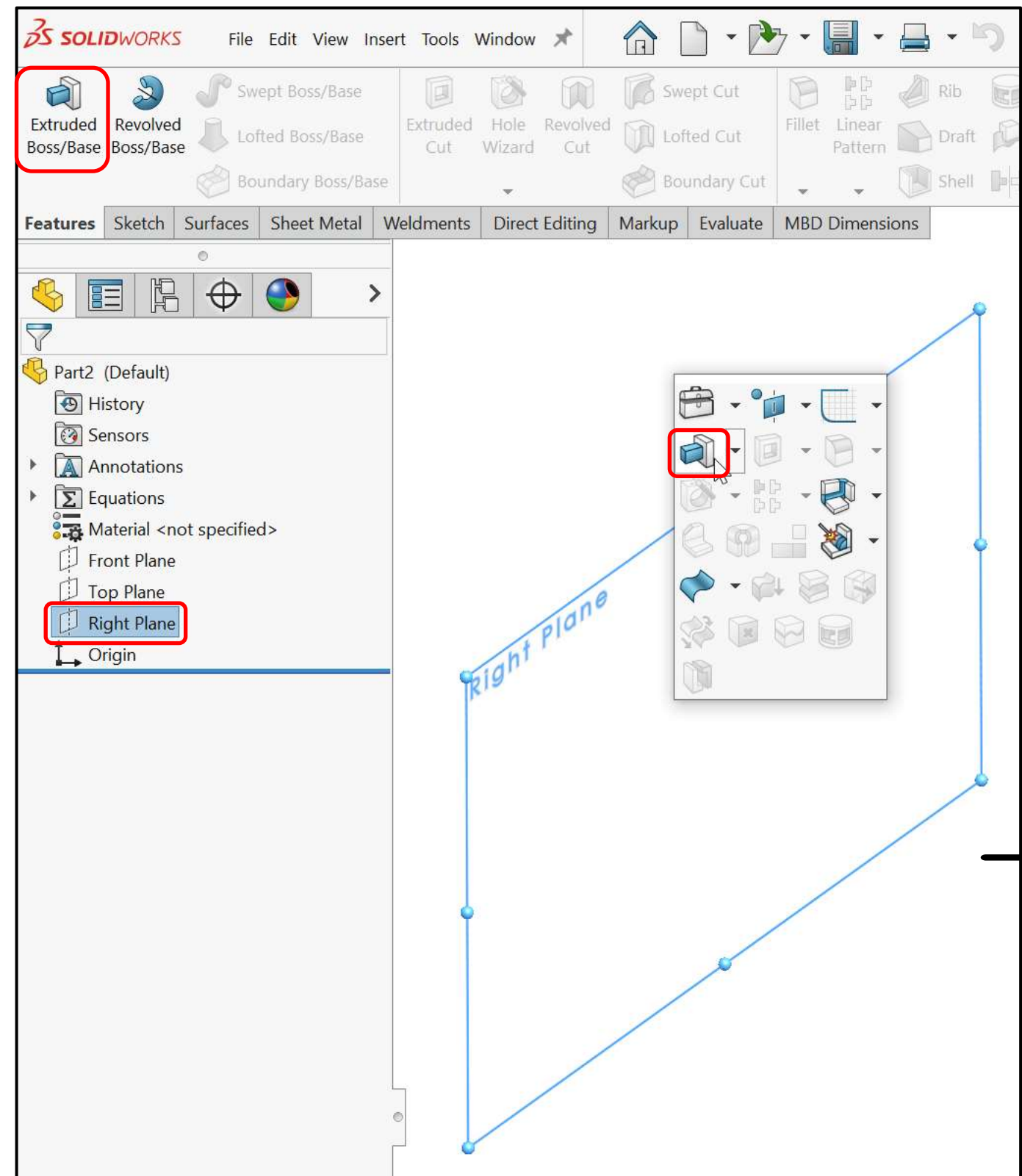
Mallinnusharjoitus: RC-auton takanapa

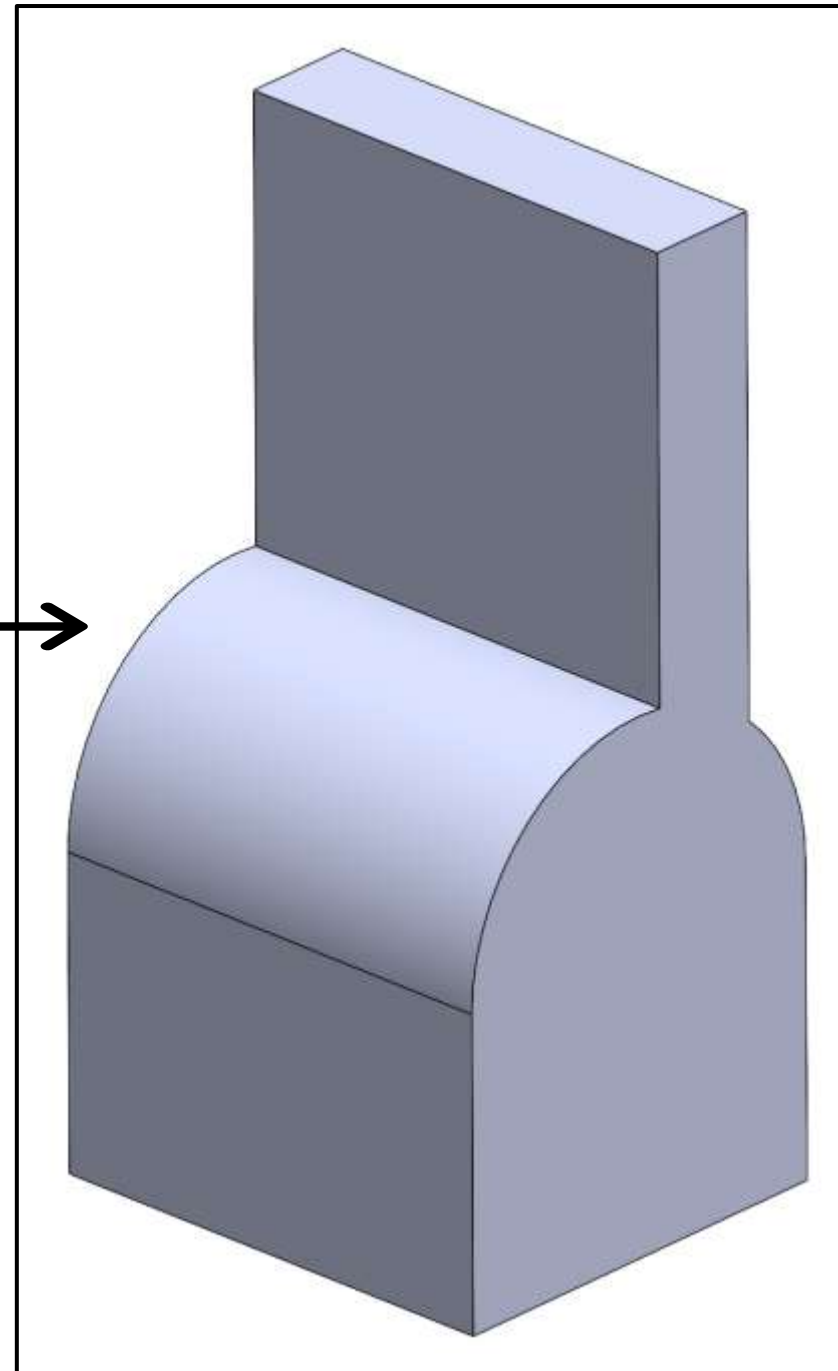
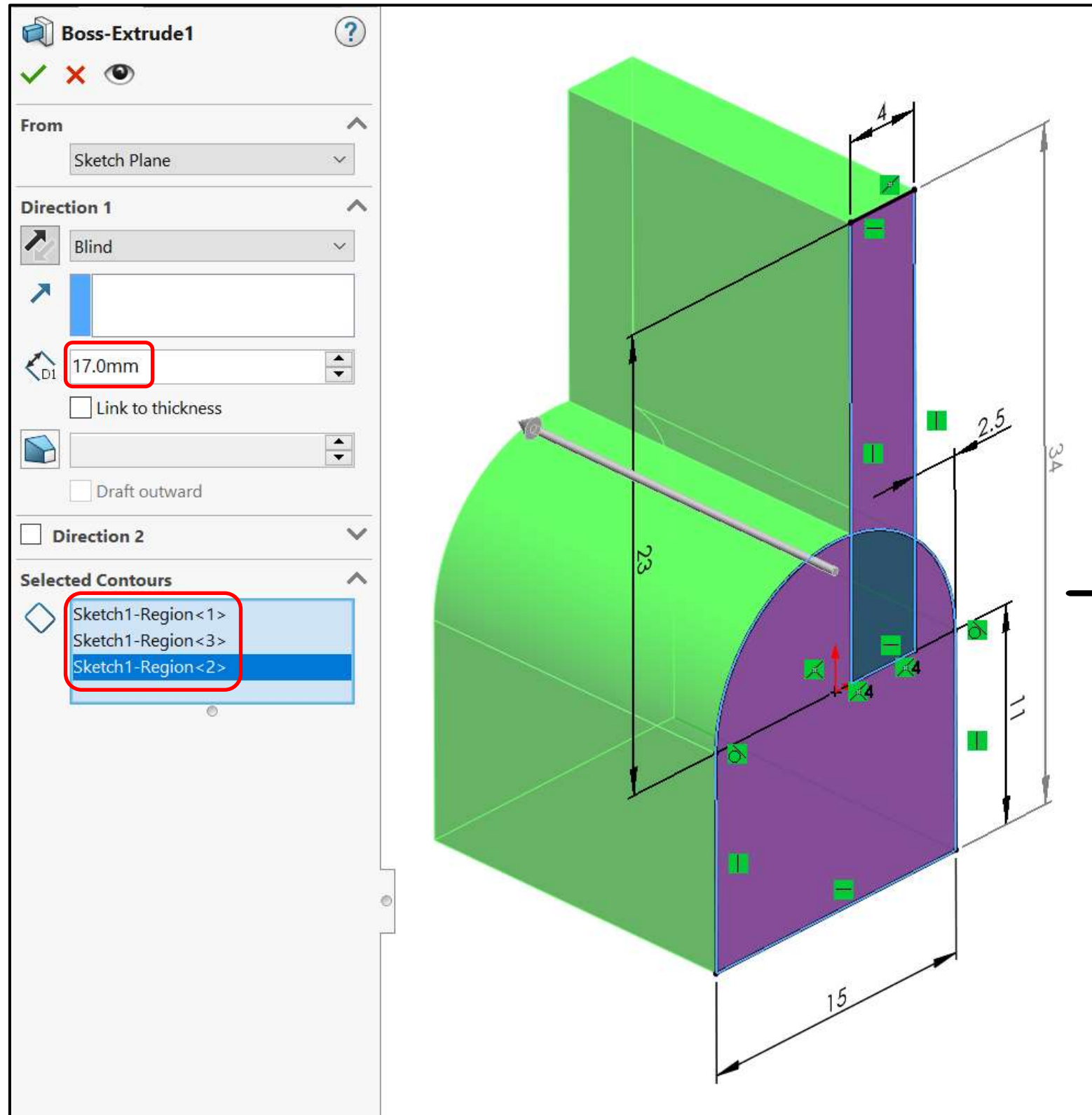
- ✓ Sketsin piirtäminen
- ✓ Geometriaehdot
- ✓ Mitoitus
- ✓ Erilaiset piirteet
- ✓ Materiaali ja massa
- ✓ Värin muuttaminen
- ✓ Mallin editointi

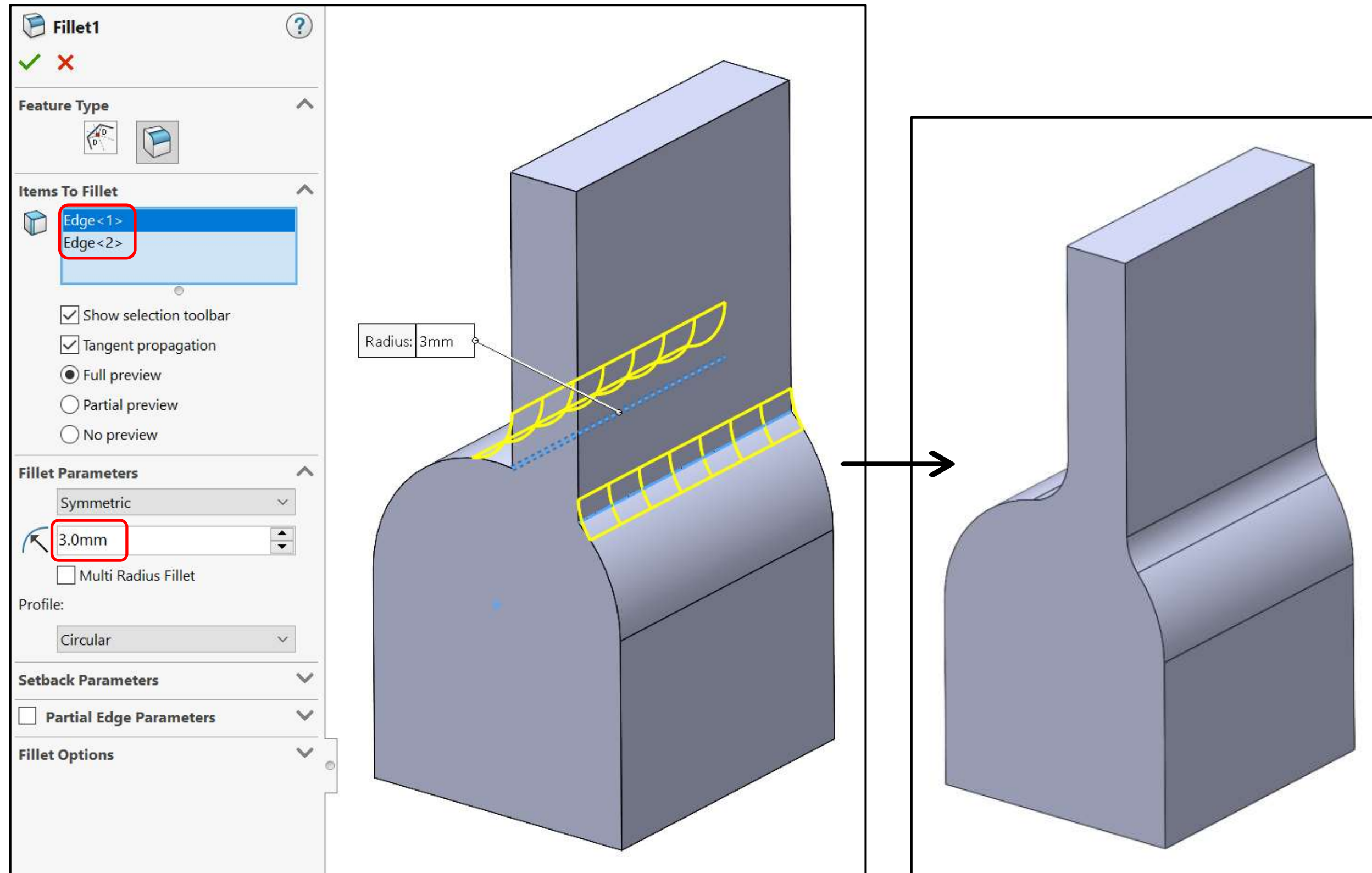


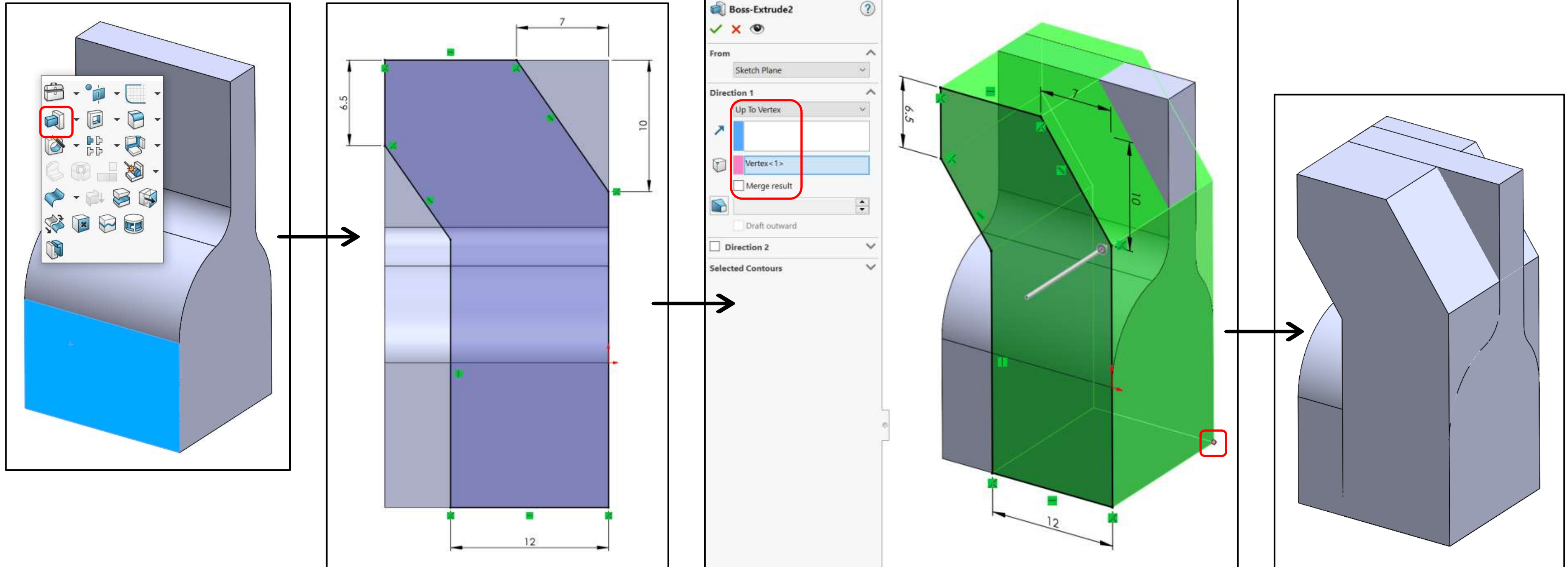


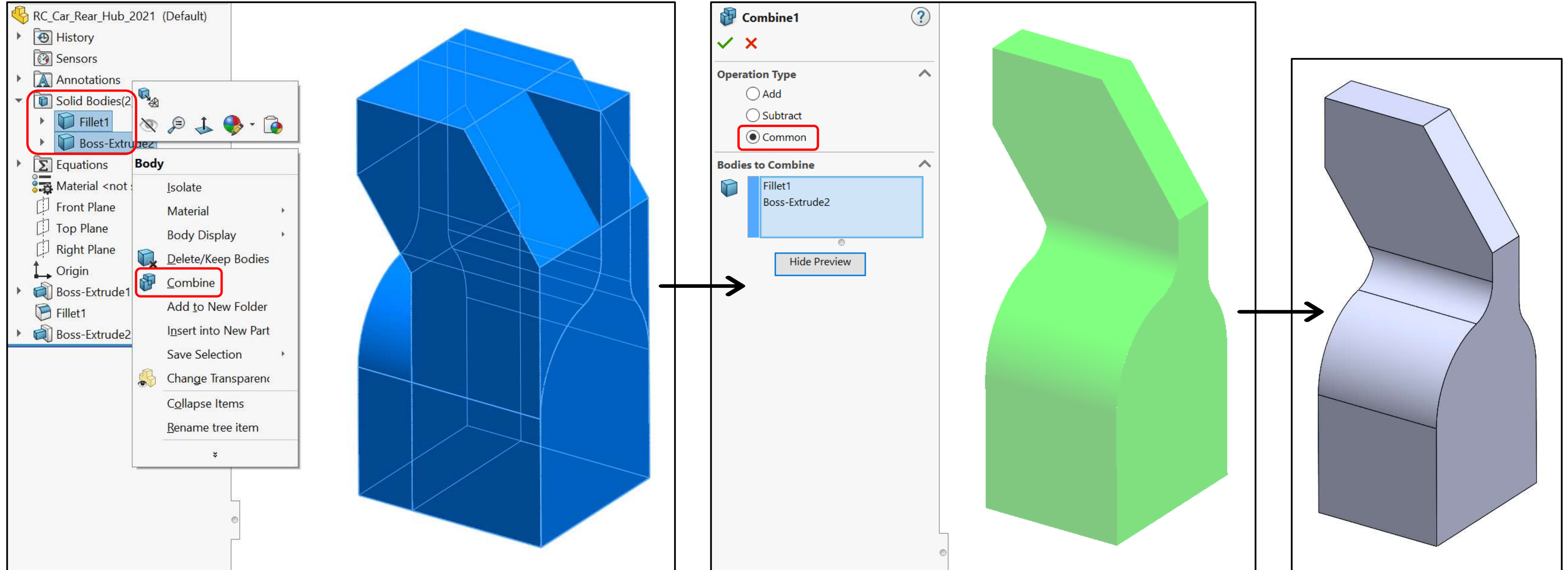
Varsinainen työpiirustus toleransseineen tehdään Perusteiden piirustukset osiossa!

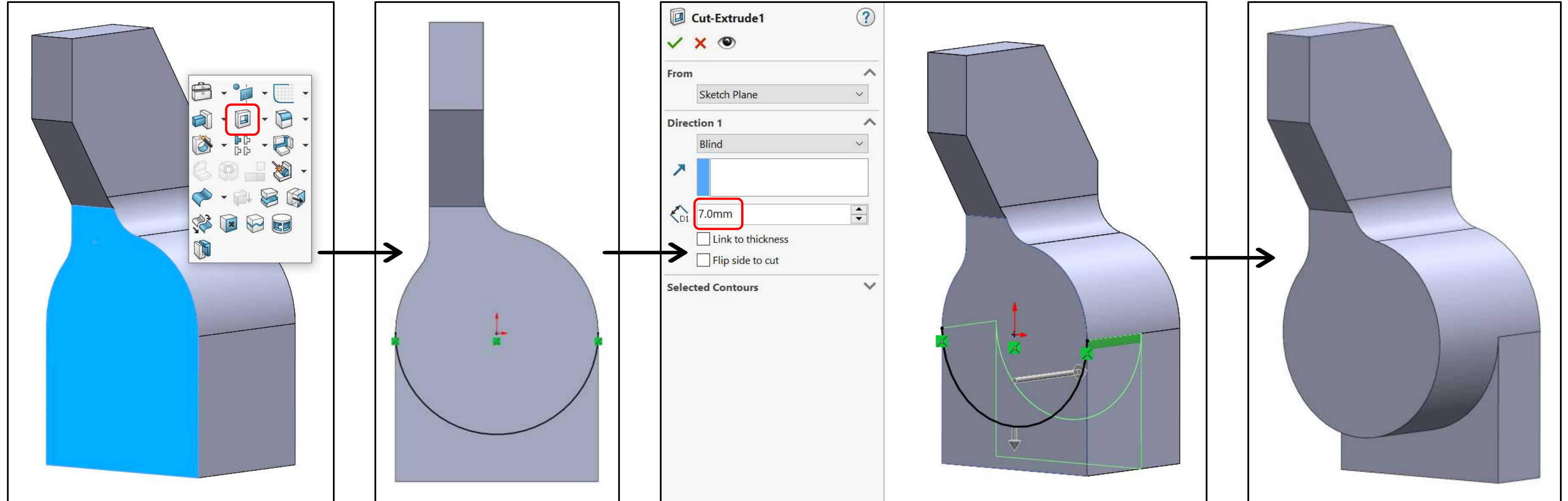


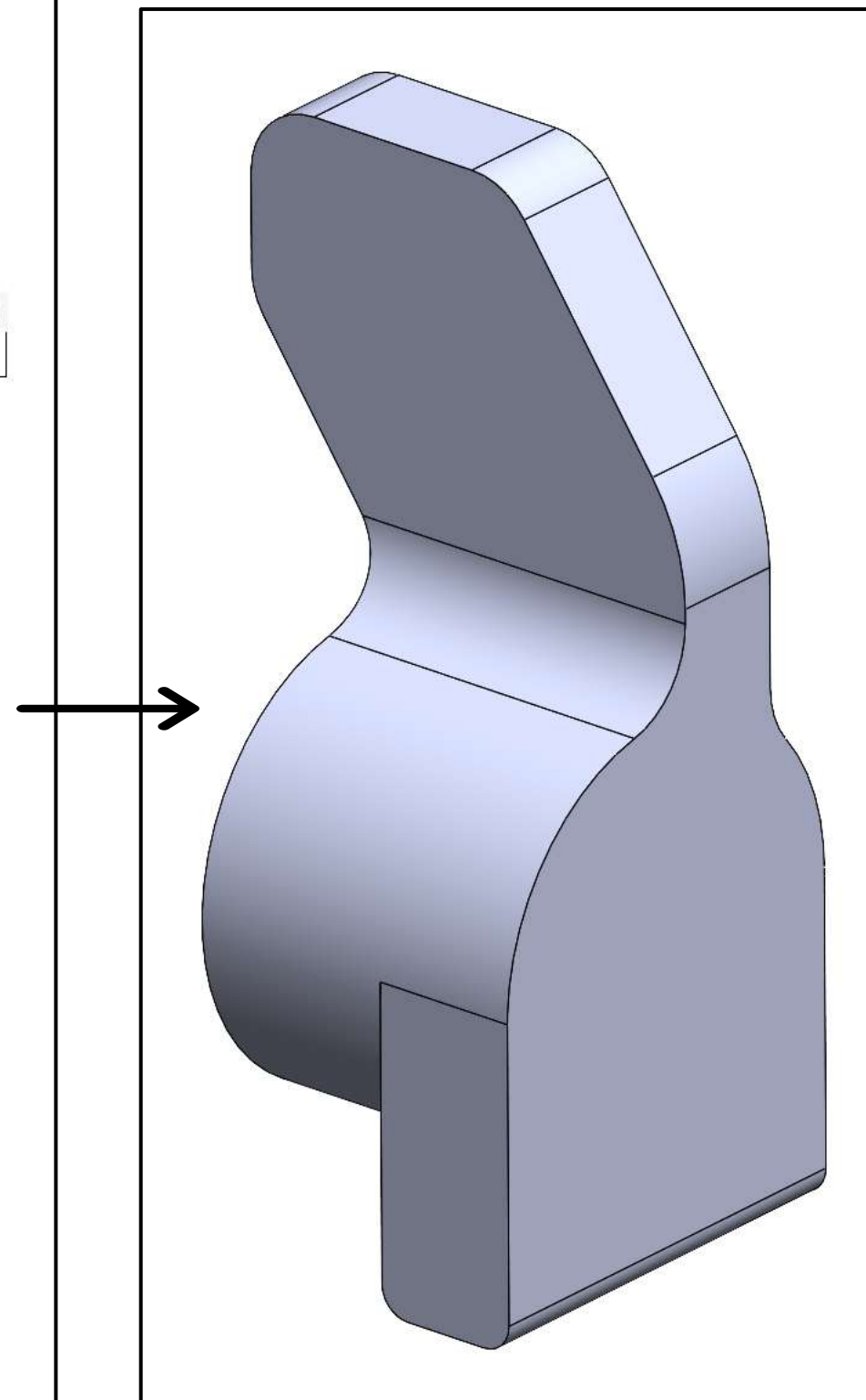
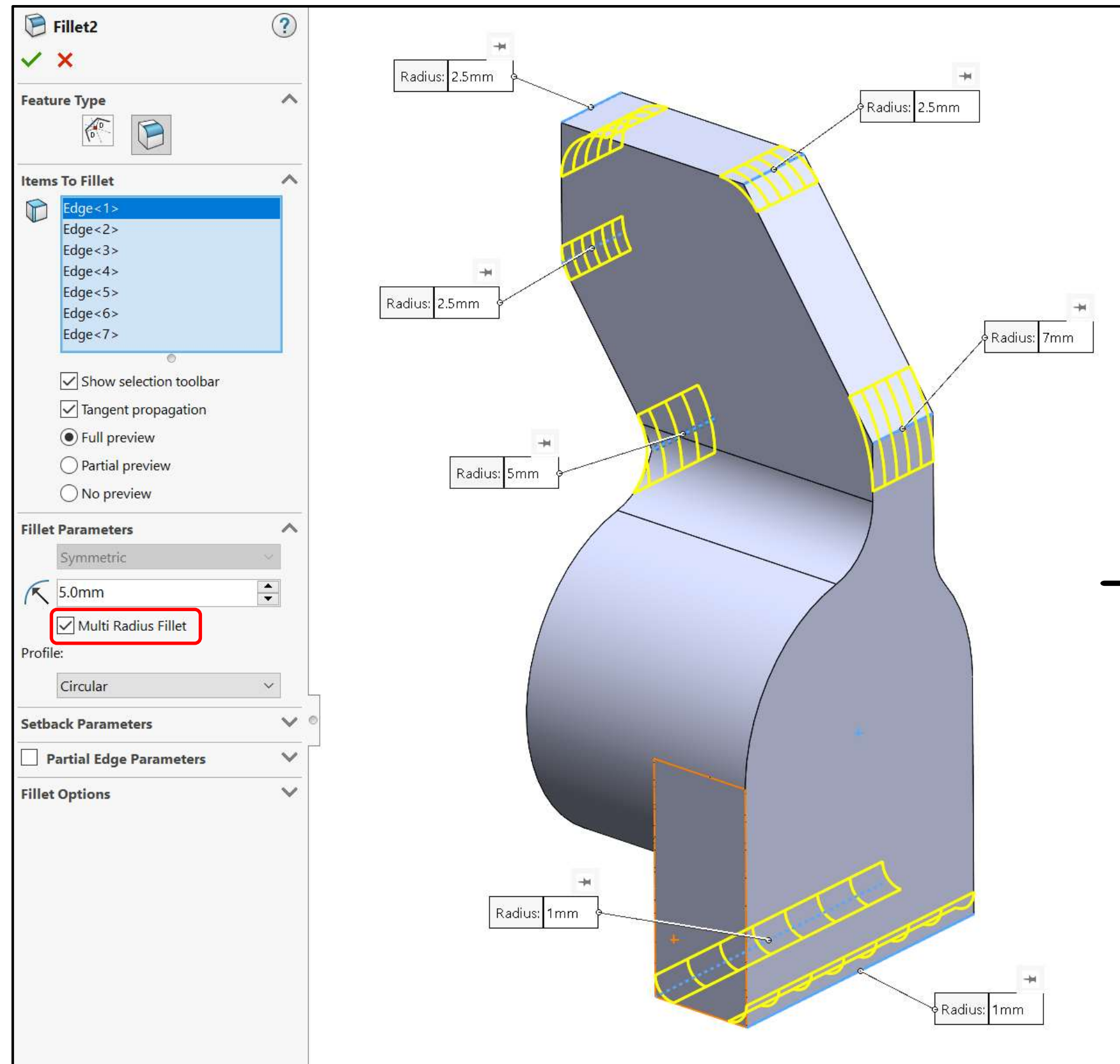


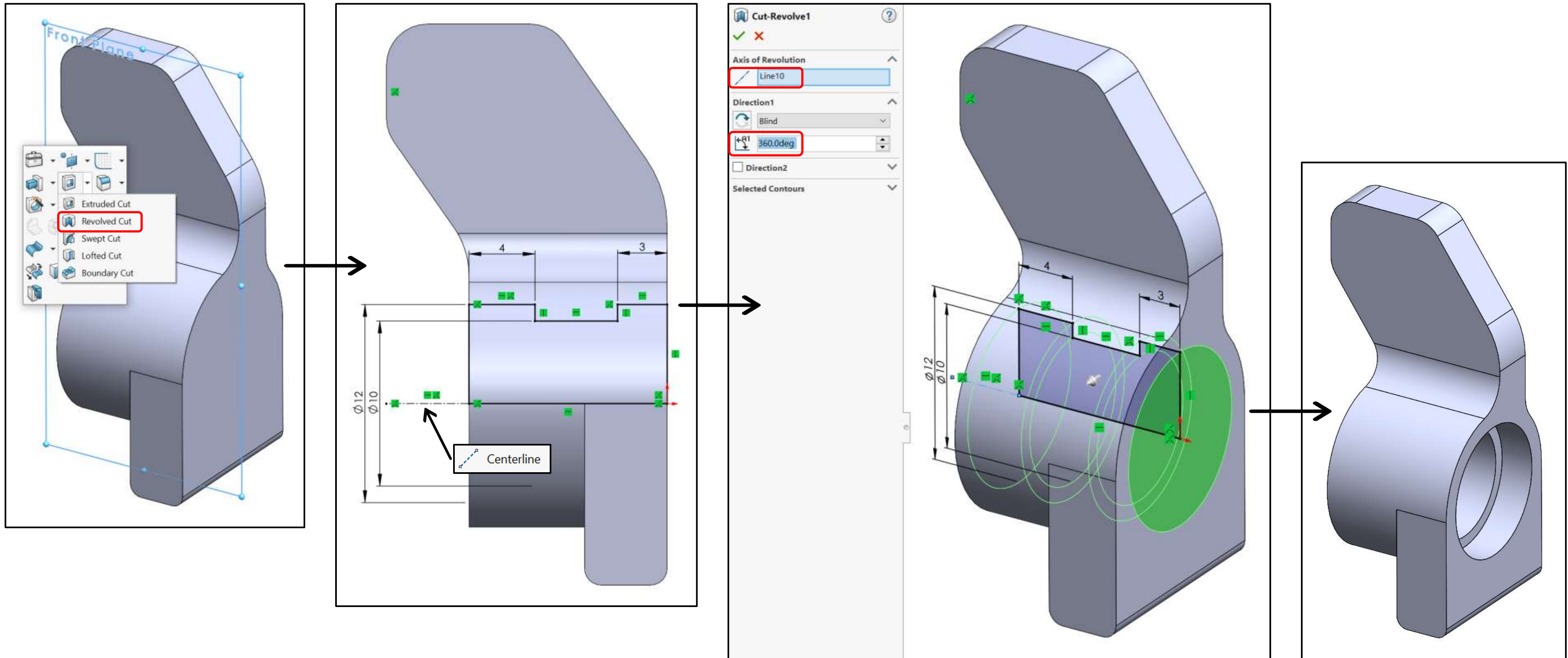


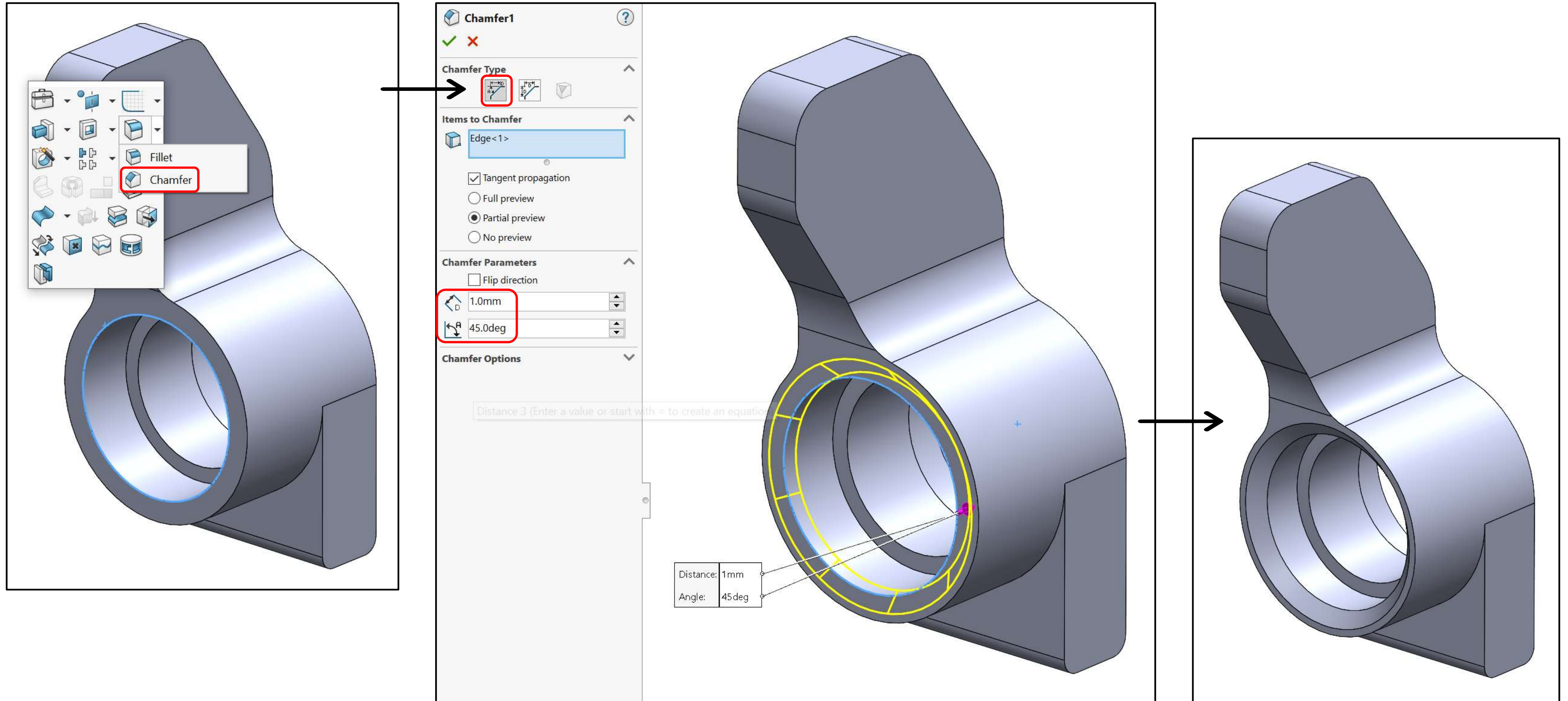


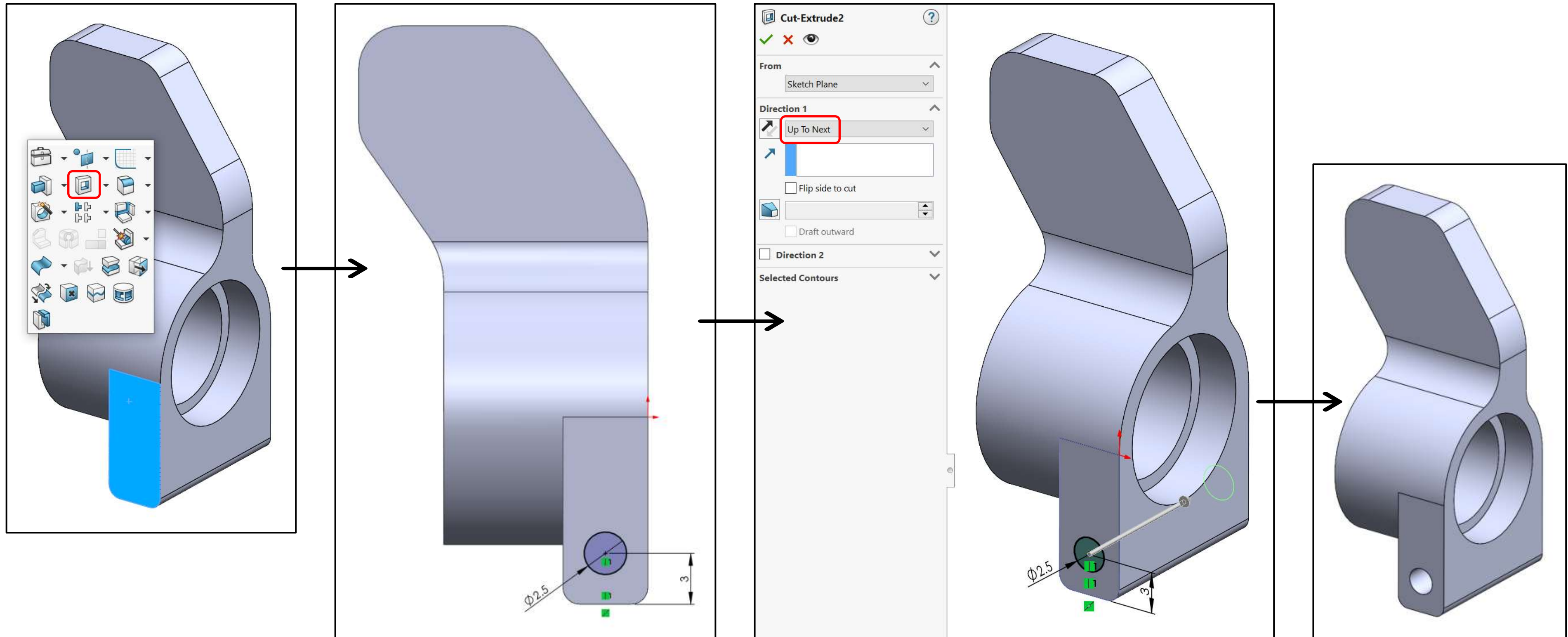








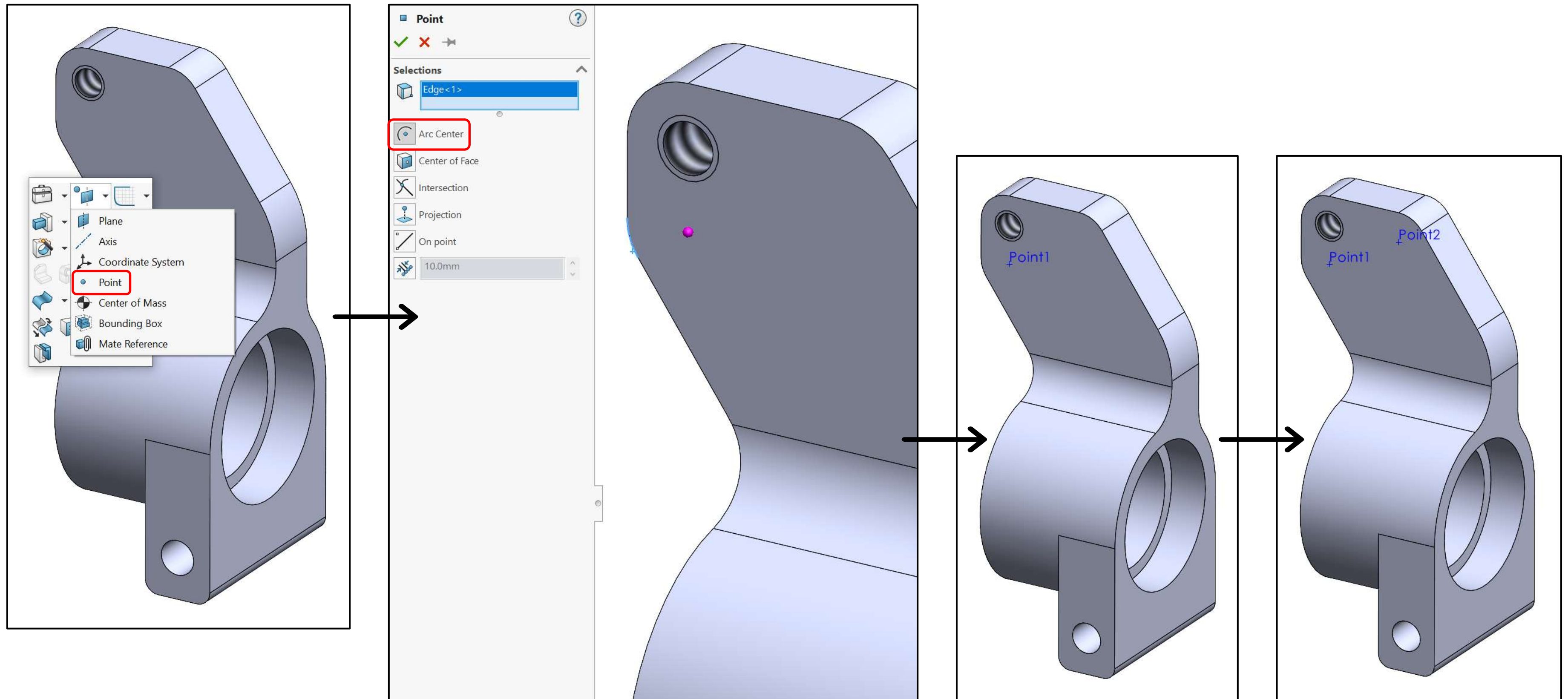


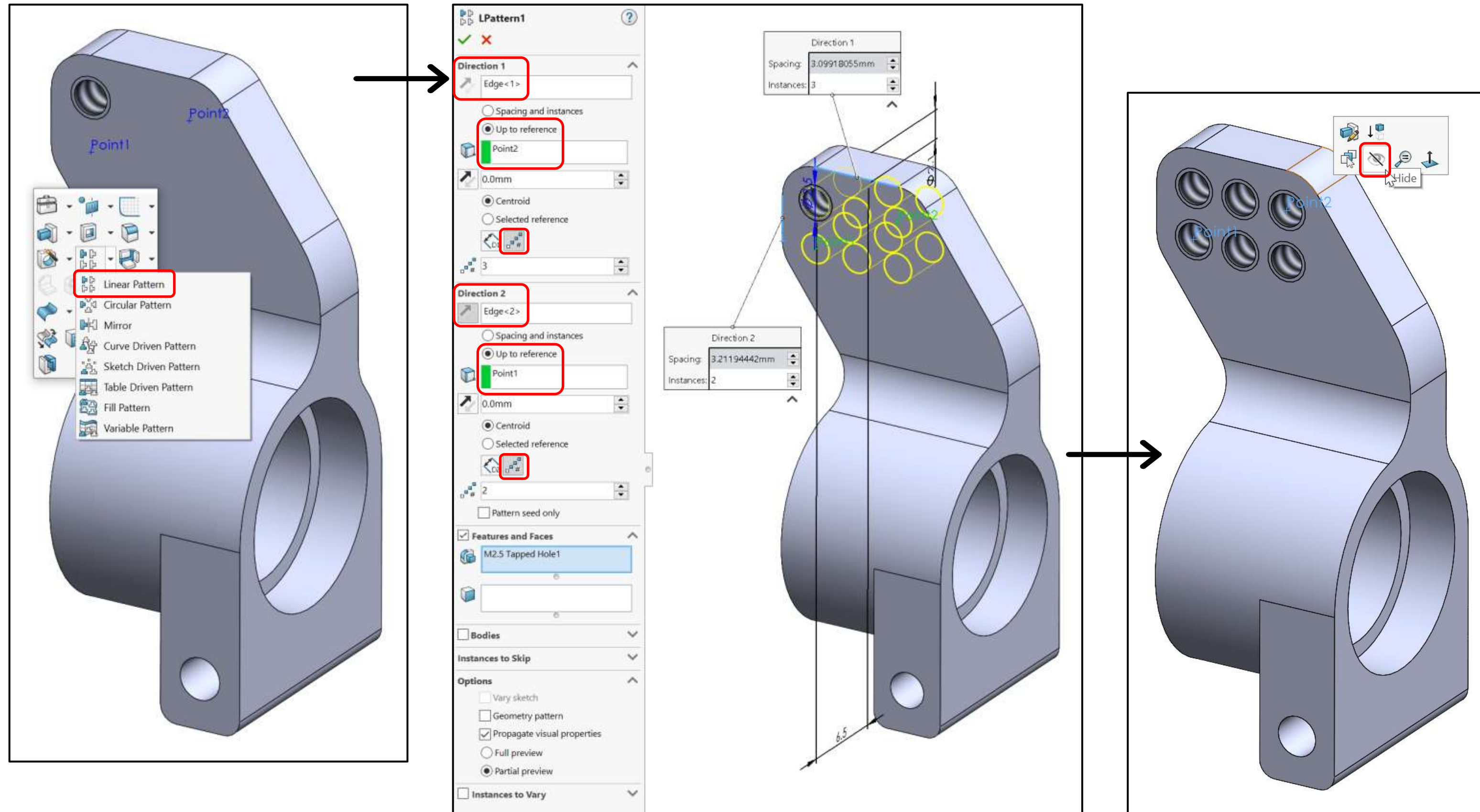


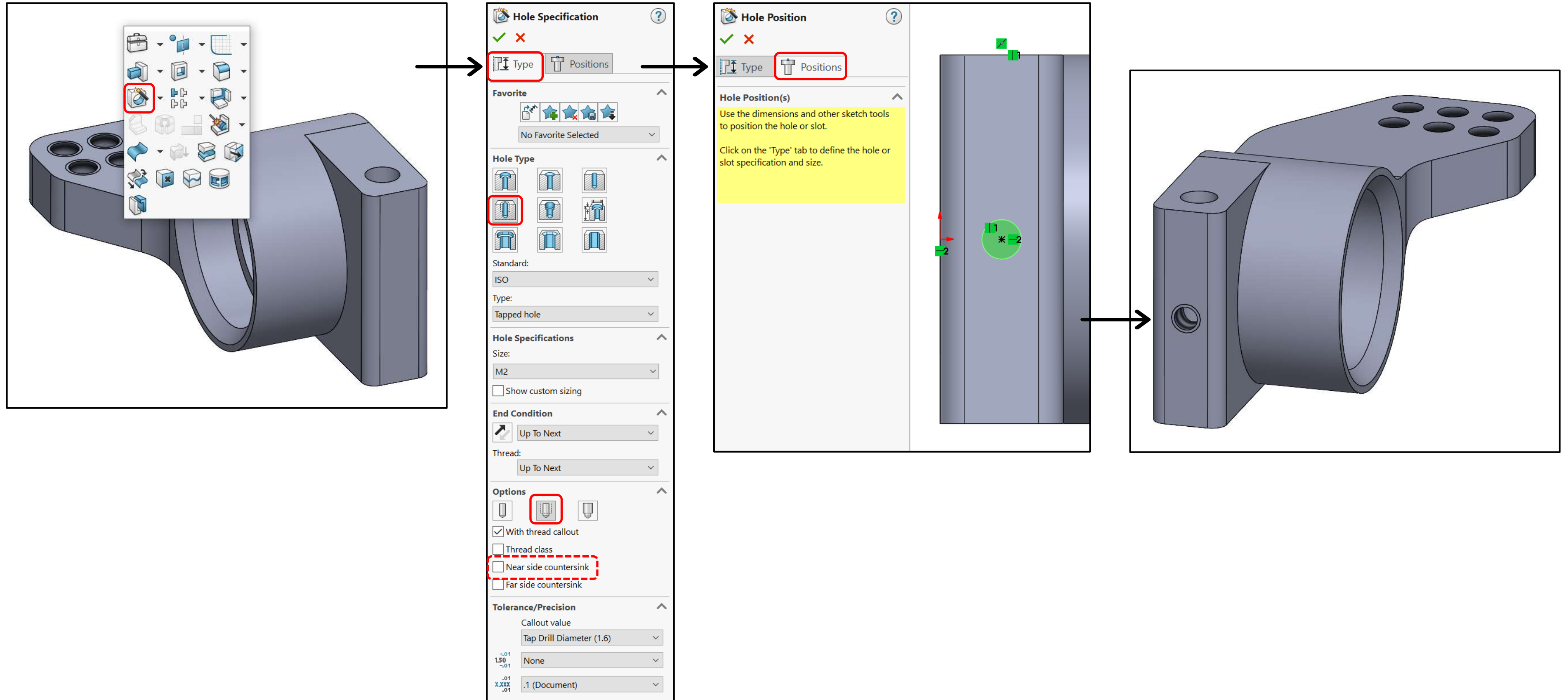
The image illustrates the SolidWorks workflow for creating a hole in a part, specifically for a radio-controlled car chassis (RC-auton takanapa).

The workflow consists of the following steps:

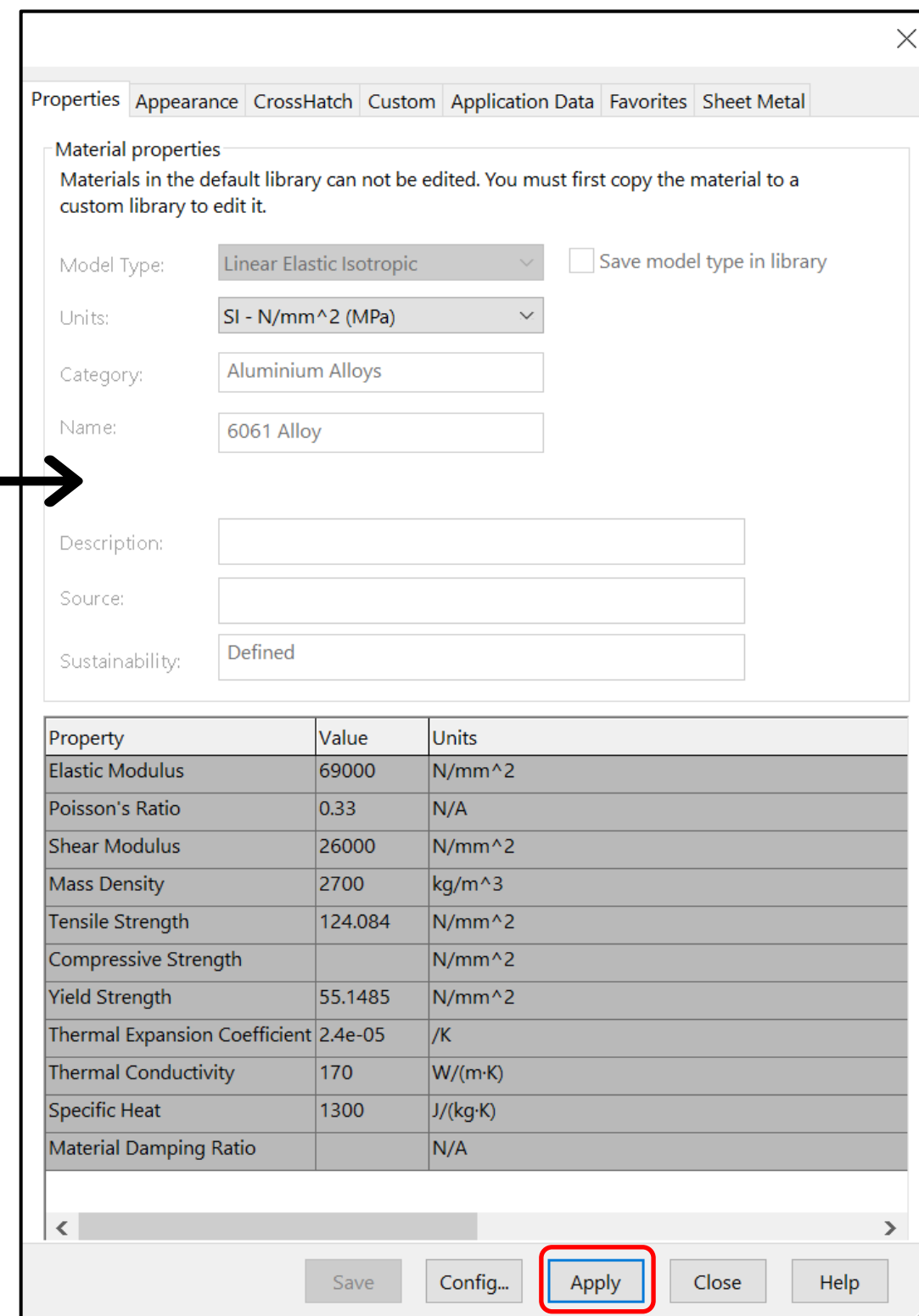
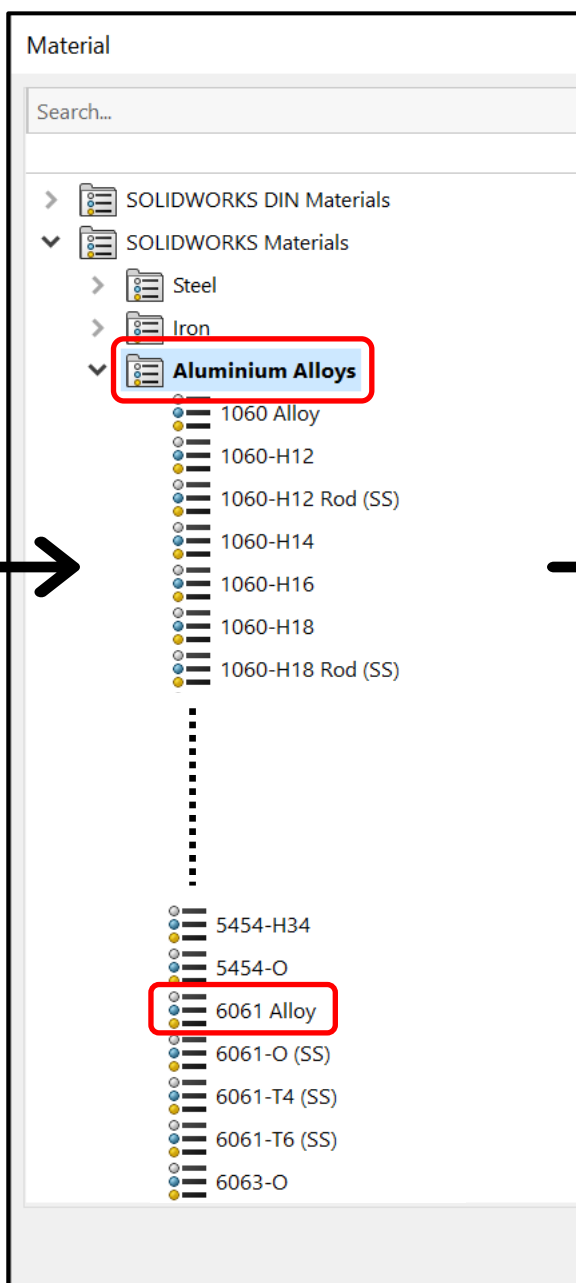
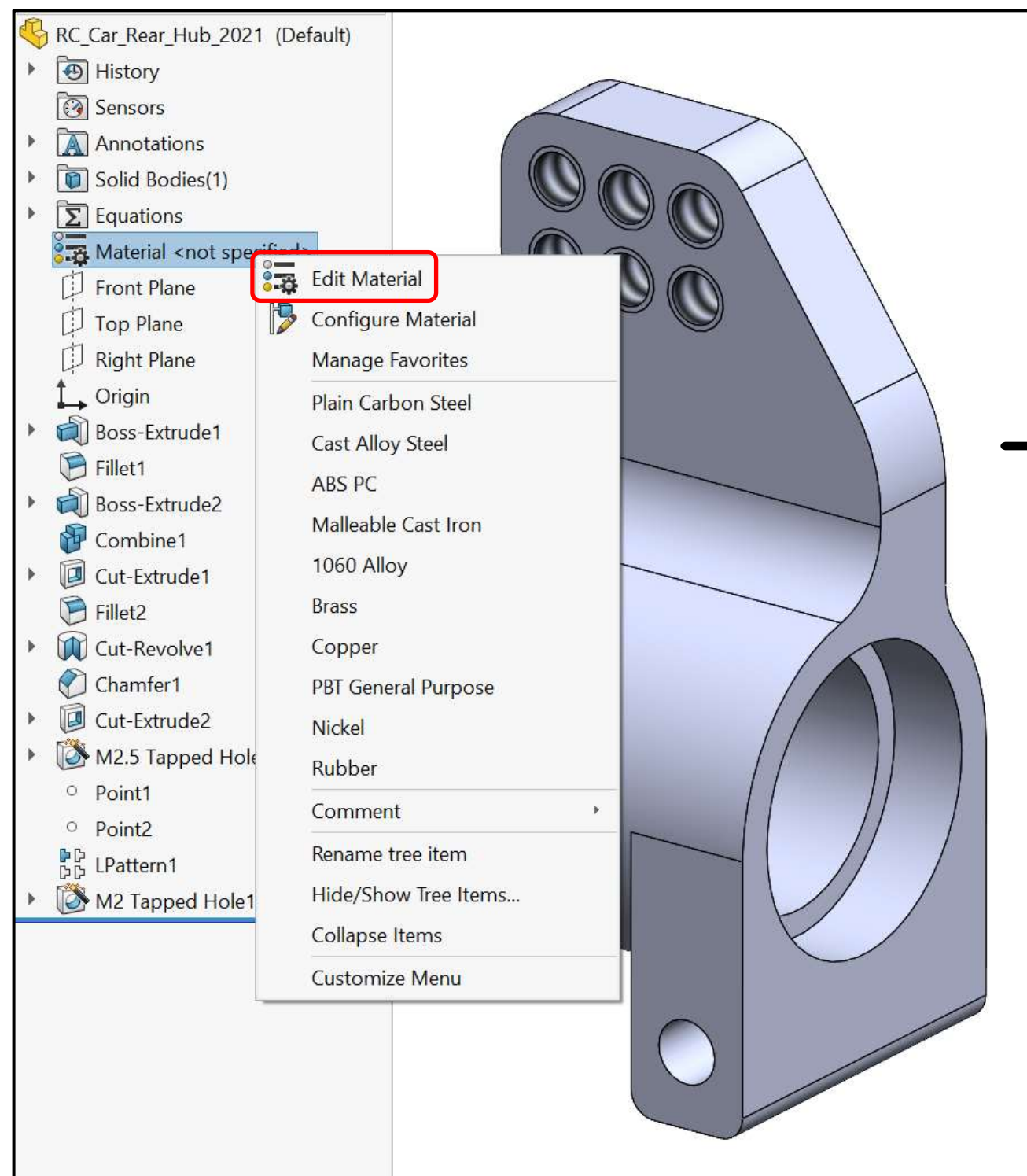
- Feature Tree:** The 'Hole' feature is selected in the feature tree.
- Hole Specification Task Pane:** The 'Type' tab is selected. The 'Hole Type' is set to 'Standard'. The 'Size' is set to 'M2.5'. The 'End Condition' is set to 'Up To Next'. The 'Options' section shows 'With thread callout' checked and 'Near side countersink' unchecked.
- Hole Position Task Pane:** The 'Positions' tab is selected. A yellow highlighted area indicates the position of the hole.
- Sketch:** A 2D sketch of the hole is shown on the chassis face.
- Document Properties - Detailing:** The 'Detailing' tab is selected. The 'Display filter' section shows 'Cosmetic threads' and 'Shaded cosmetic threads' checked. The 'Point, Axis, and Coordinate System' section shows 'Hide names' unchecked.







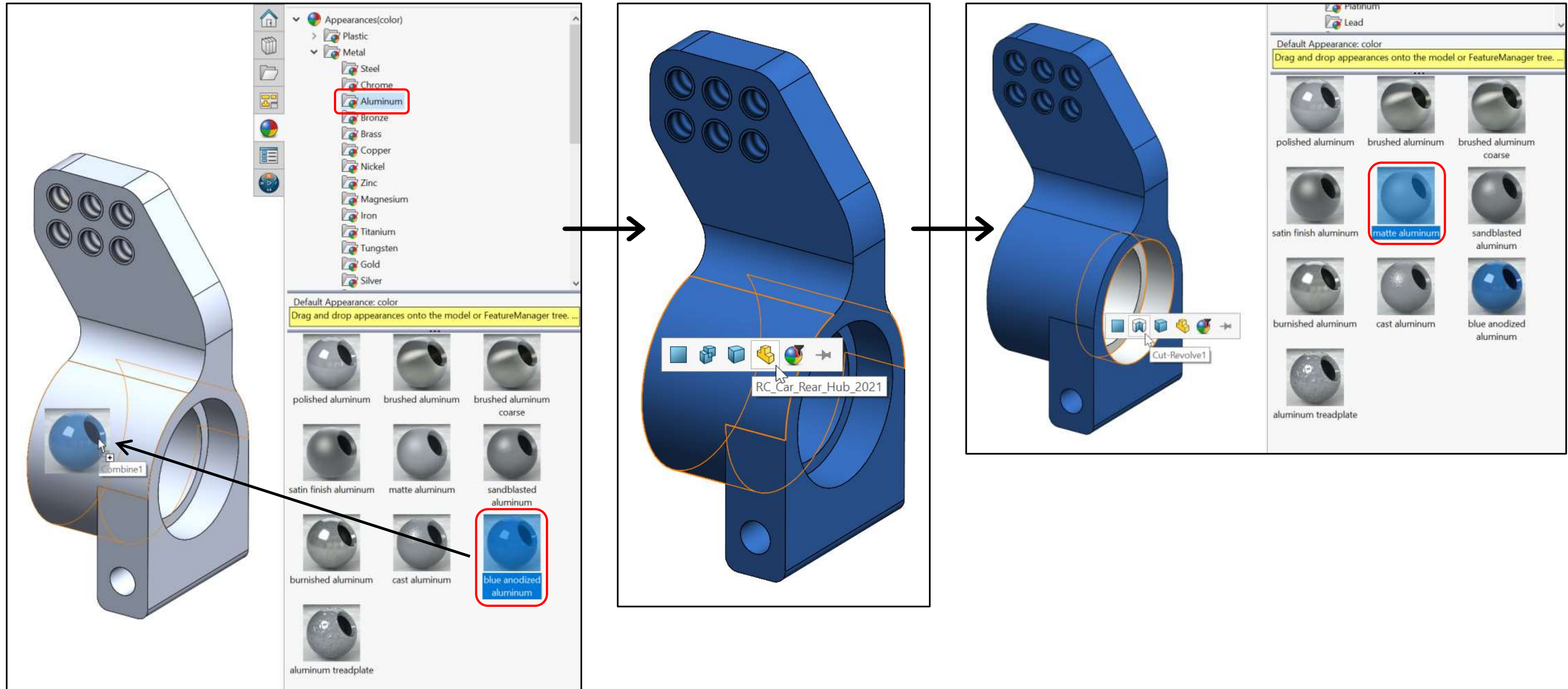
Mallinnusharjoitus: RC-auton takanapa

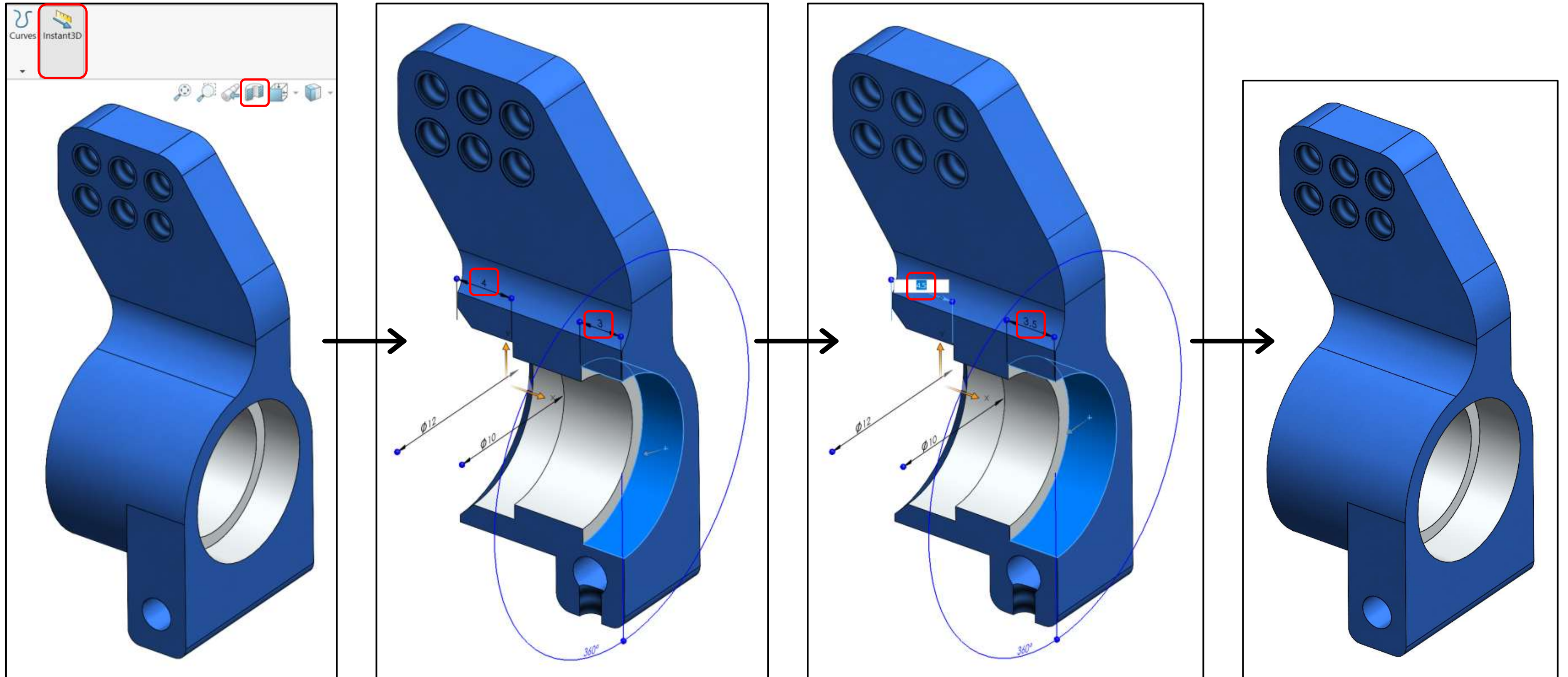


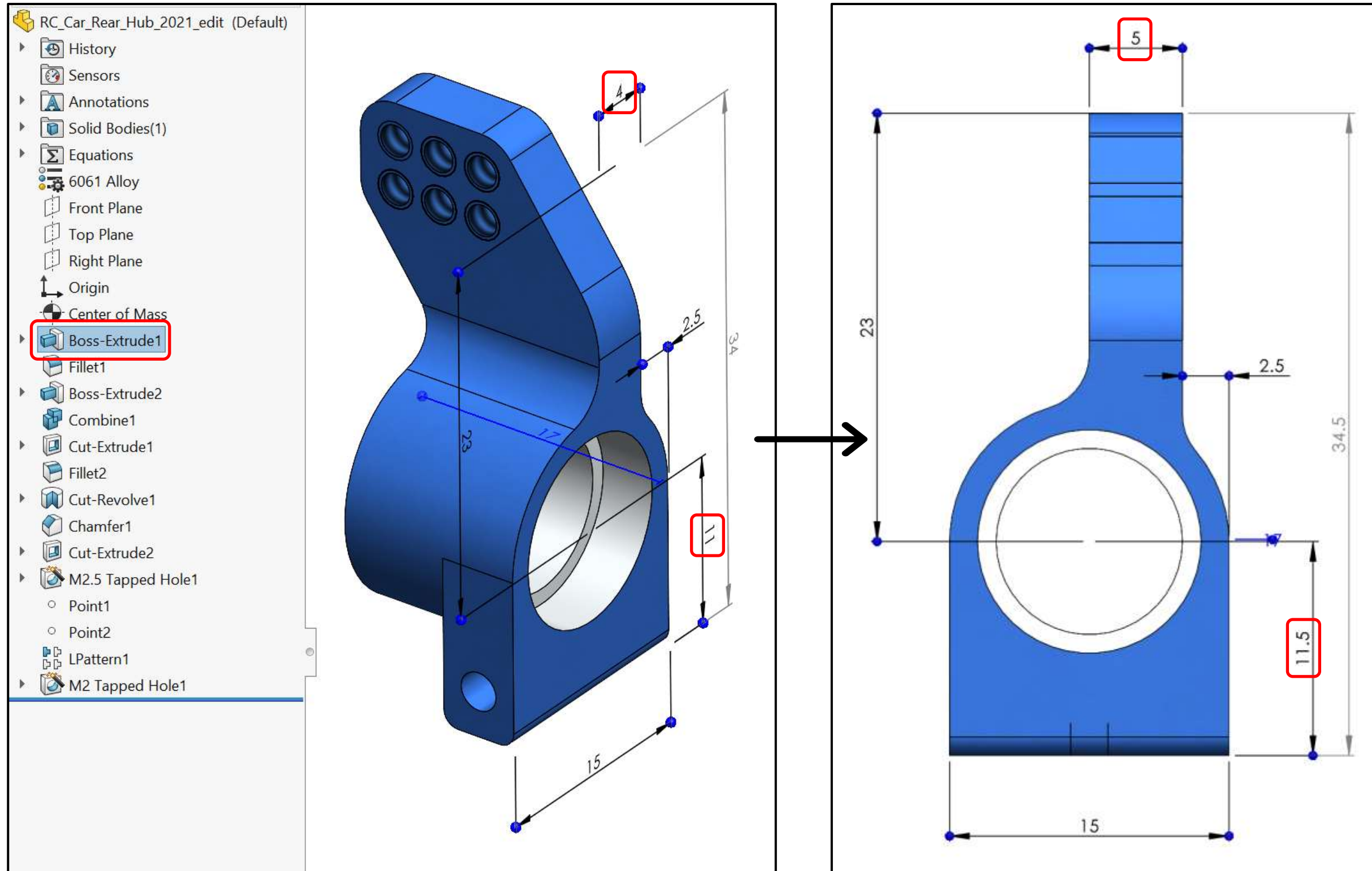
The diagram illustrates the steps to calculate the mass properties of a 3D model in SolidWorks:

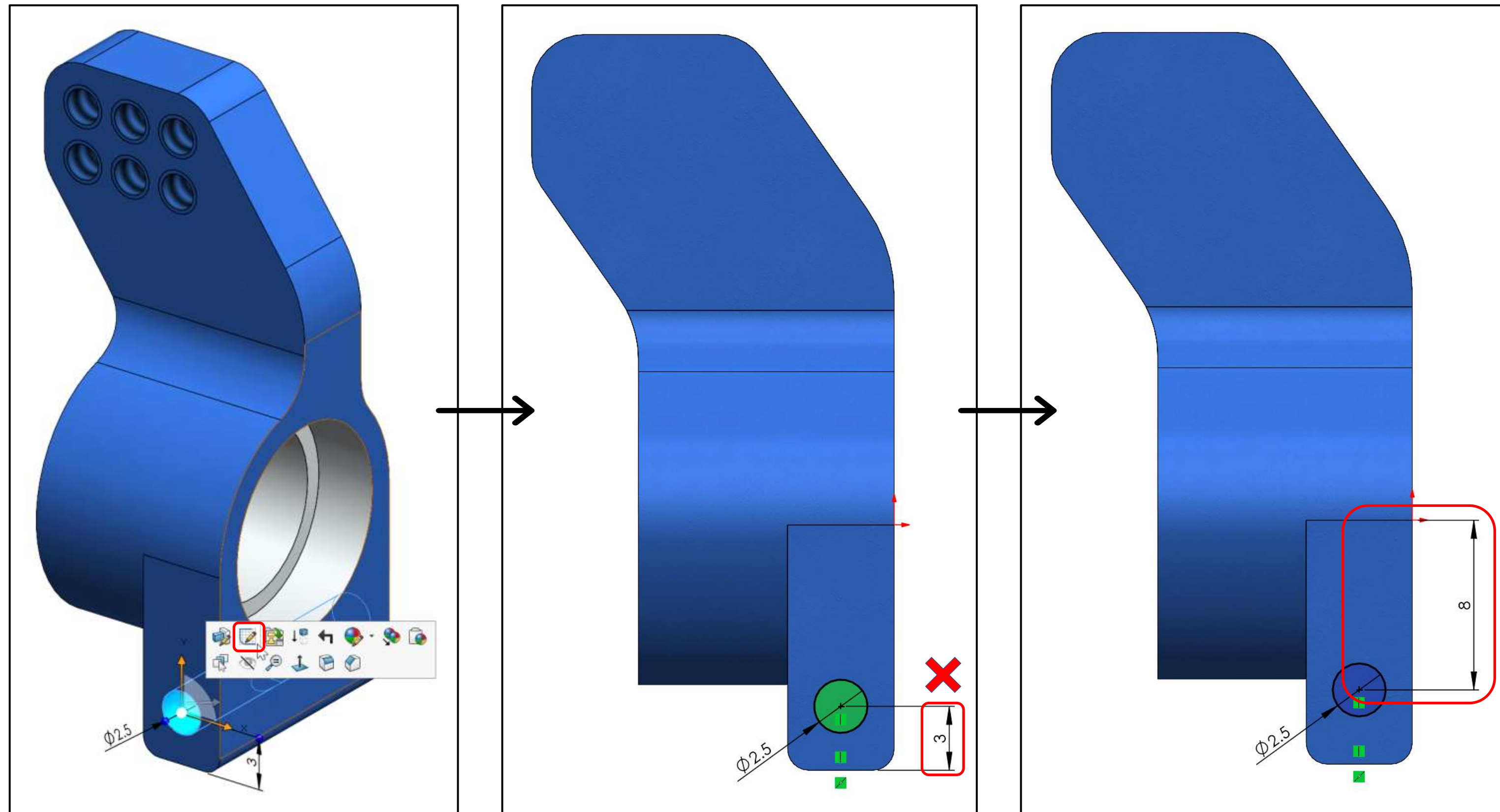
- Menu Selection:** The 'Mass Properties' option is selected from the top application menu.
- Mass Properties Dialog:** The 'Mass Properties' dialog box is shown with the following settings:
 - File: RC_Car_Rear_Hub_2021.SLDPRT
 - ☒ Include hidden bodies/components
 - ☒ Create Center of Mass feature
 - ☐ Show weld bead mass
 - Report coordinate values relative to: -- default --
 The calculated mass is highlighted: **Mass = 5.4 grams**. Other properties listed include Volume = 1990.7 cubic millimeters, Surface area = 2132.8 square millimeters, and various inertia values.
- 3D Model:** The 3D model of the RC car rear hub is shown with the center of mass point (D1) marked on its surface.

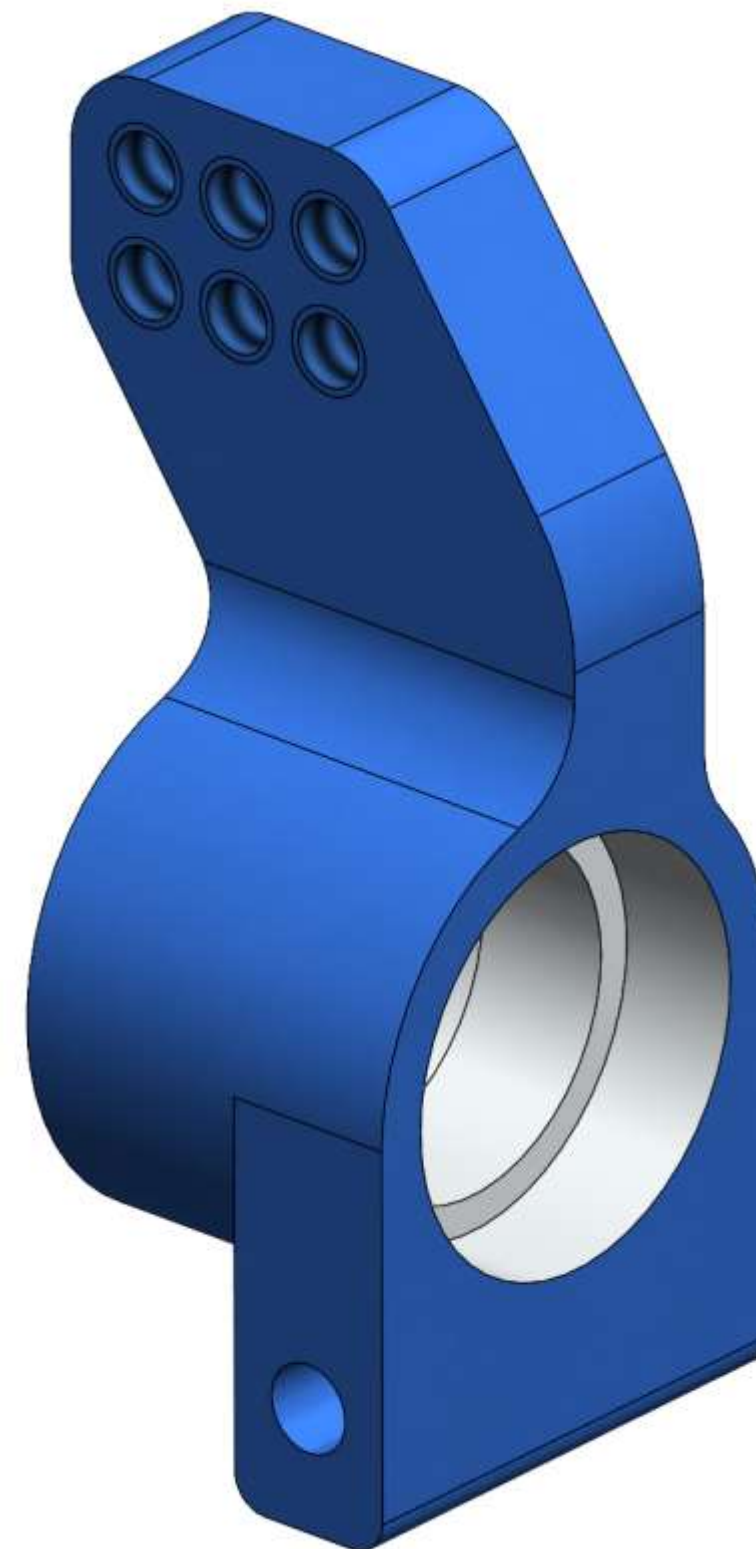
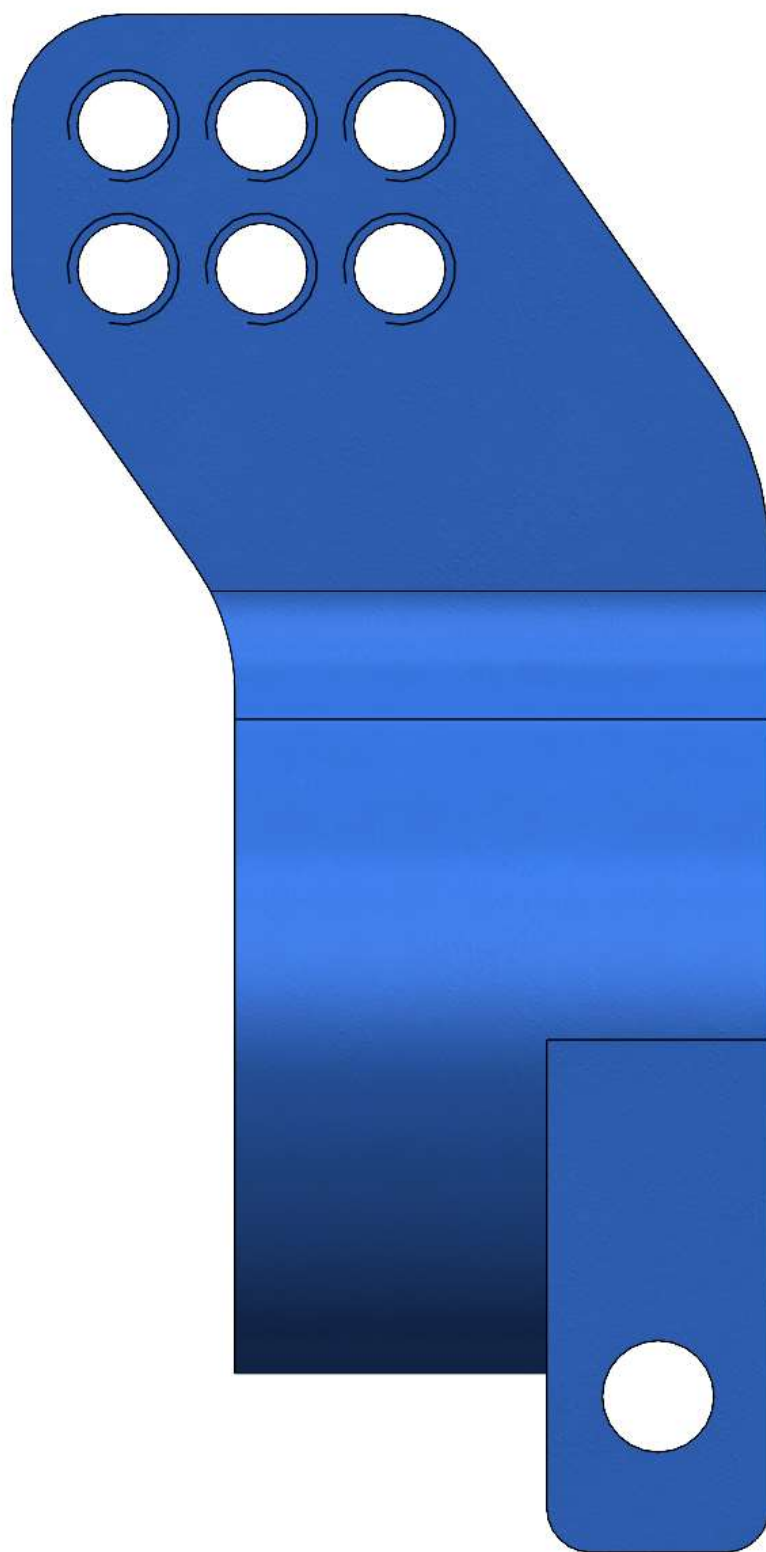
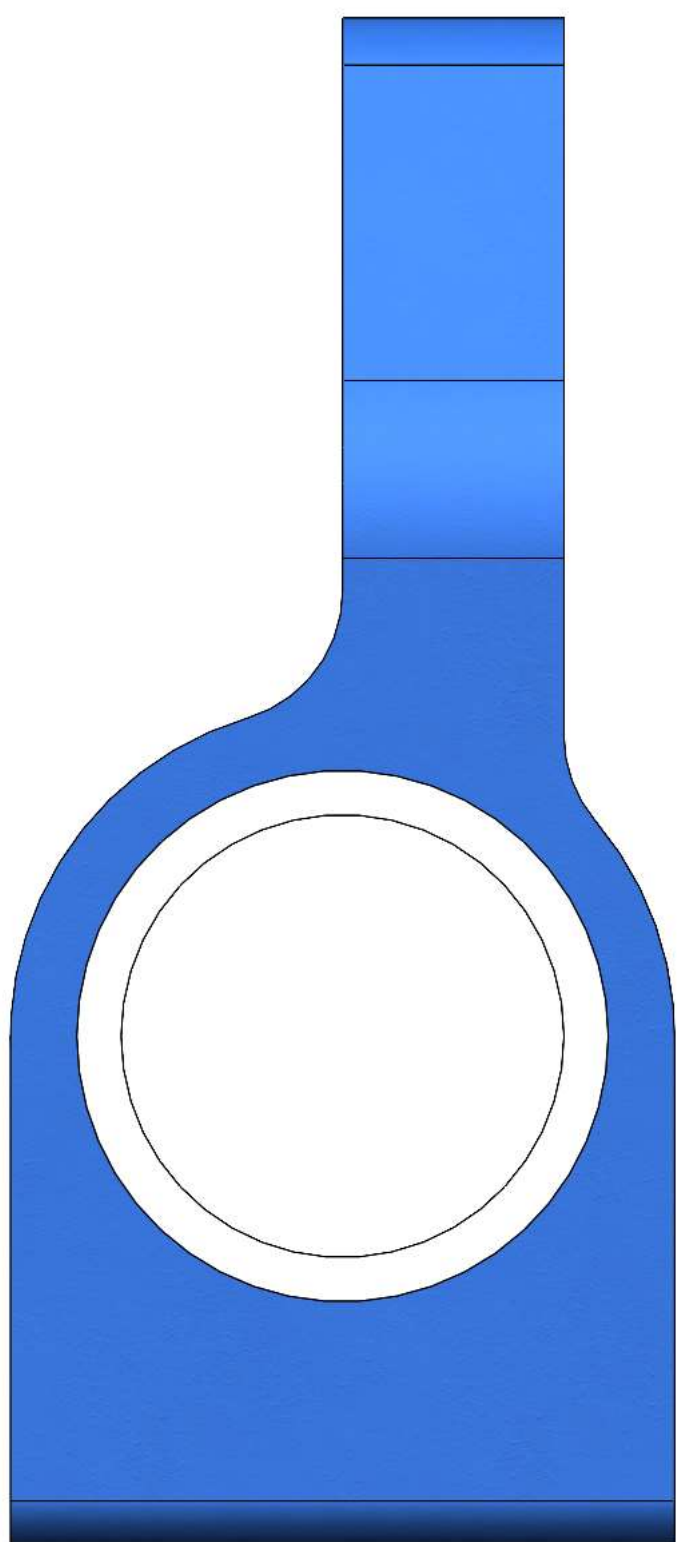
Mallinnusharjoitus: RC-auton takanapa













aipworks.fi/koulutus/

AIPWORKS

Jouni Jalkanen

3D-Kaveri

010 325 6160

jouni.jalkanen@aipworks.fi

www.aipworks.fi

AIPWORKS

Jesse Kontio

3D-Kaveri

010 325 6160

jesse.kontio@aipworks.fi

www.aipworks.fi

