



Cheval Mirror Exercise



Prerequisite Knowledge

To complete this model you should have experience of the following:
Sketching, Extrude Boss/Base, Extrude Cut and renaming features.

Focus of lesson

This lesson will focus on using the following feature commands-
Editing Toolbar, Inserting Commands, Ellipse

Commands Used

This lesson includes Sketching, *Extruded Boss/Base*, *Extruded Cut*,
Renaming features, **Ellipse, Mirror Features**

Save File

Select **File, Save As**, filename **Cheval Mirror**.



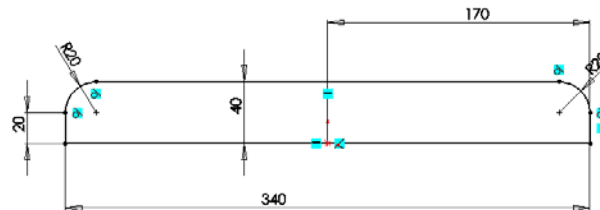
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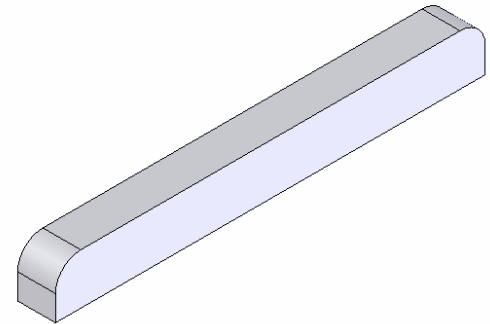
Getting Started (The Leg Base)

Create a sketch, on the right plane using the dimensions shown. Position the sketch such that the origin is in the center of the bottom line.




Extruded Boss/Base

Extrude the sketch;
End Condition: **Mid Plane**.
Depth: **30mm**.



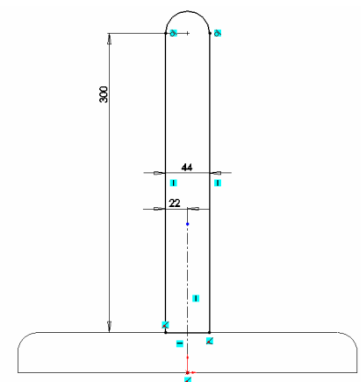
Renaming the Feature

Select the feature in the **Feature Manager Tree**. Press F2. 

The feature name will be highlighted with a flashing cursor on the right hand side. Rename the feature **“Leg Base”**

Creating the Right Leg

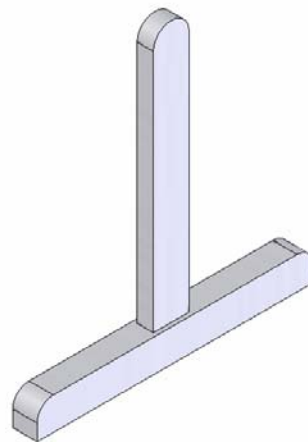
Sketch on the **Right Plane** and **extrude** it.
Mid Plane to a distance of **20mm**.
Rename the feature **“Right Leg”**





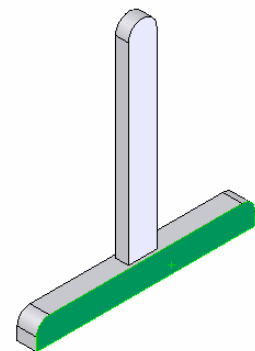
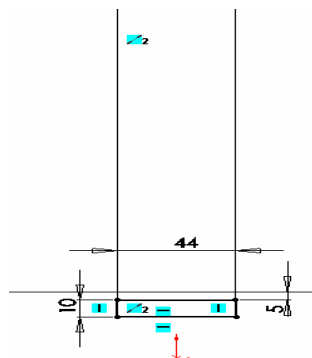
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Creating Horizontal Rail

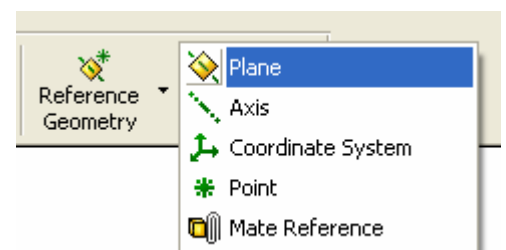
Select sketch and pick the inside of the **Leg Base** as shown.



Extrude the sketch **Blind** to a distance of **150mm**.
Rename the feature **“Rail”**.

Insert Plane

In **Reference Geometry** select **Plane**.



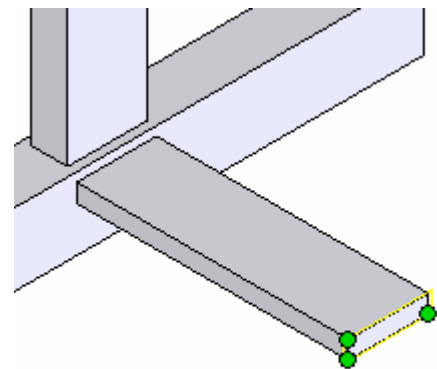
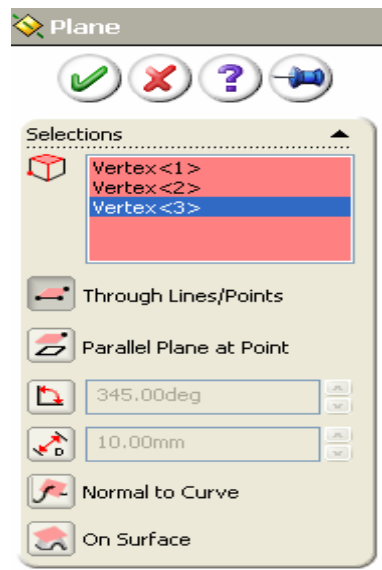
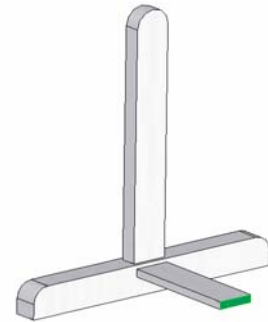


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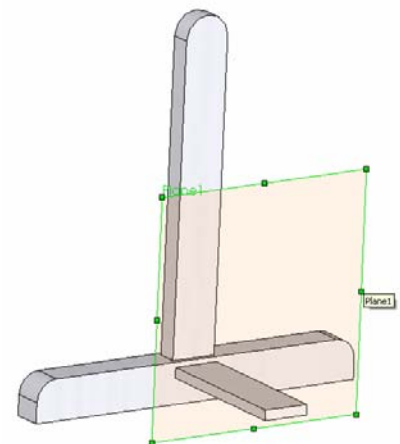
The **Plane** is to be inserted on the end face of the rail as shown.



Insert a Plane using the **Through Lines/Points** option and select three corners on the end face of the rail.

Increase Plane Size

Increase the plane size by grabbing it and pulling the icons.

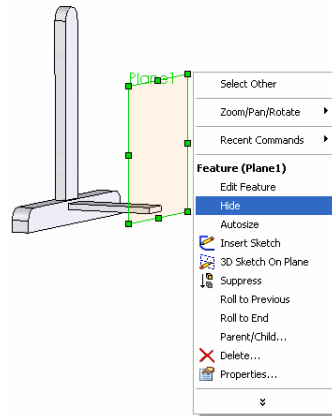




Hiding the Plane

The **Plane** can be hidden by **right clicking** on it and selecting **hide**.

It appears **White** in the feature manager.



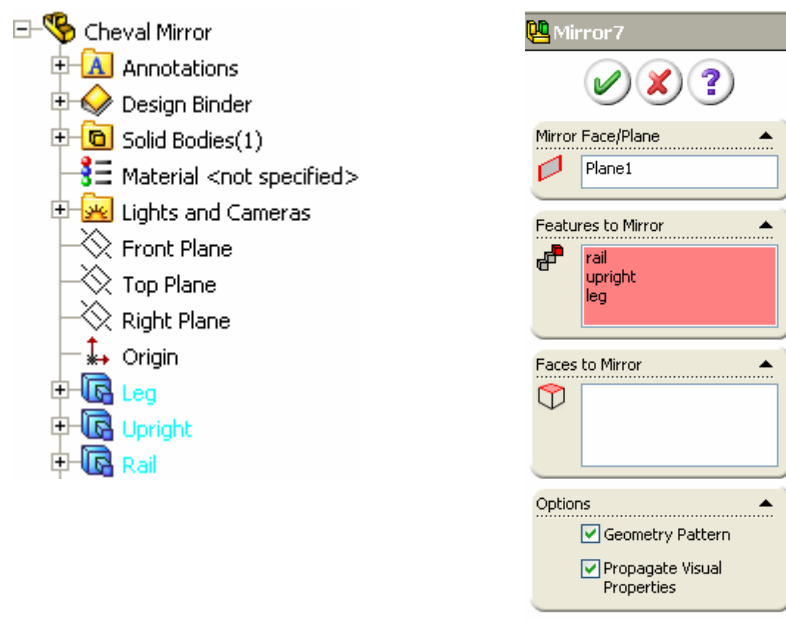
It can be shown again by right clicking on it and selecting **Show**.

It appears **Blue** in the feature manager.



Mirror the Features

Select the features already drawn and mirror them around the plane.



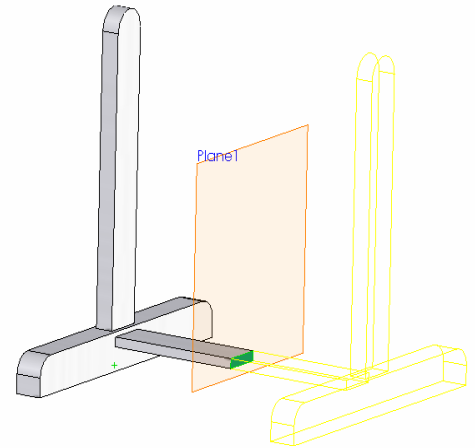


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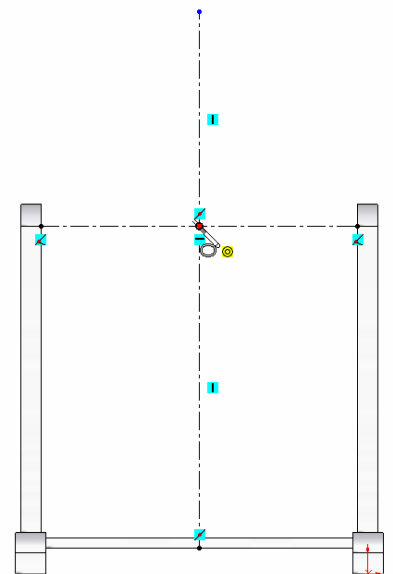
A **preview** of the Mirrored feature appears in yellow.



Setting up The Ellipse

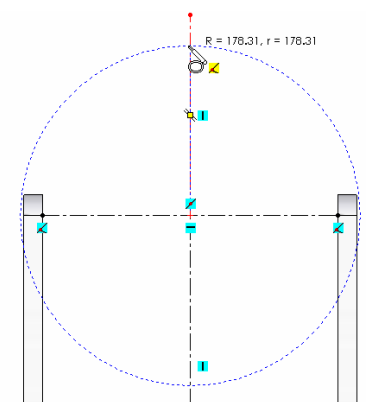
Draw two center lines to get the center of the ellipse.
Select the **ellipse** icon and start on the intersection of the center lines.

As can be seen by the yellow icon  The ellipse is drawn based on concentric circles.

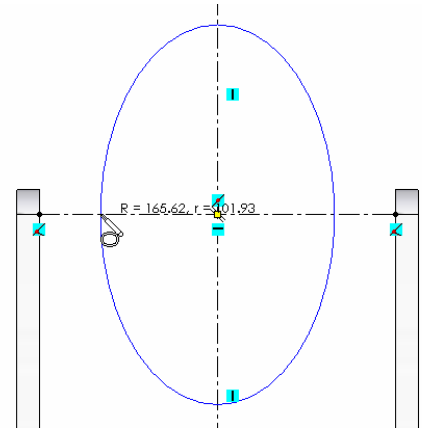


Draw the Ellipse

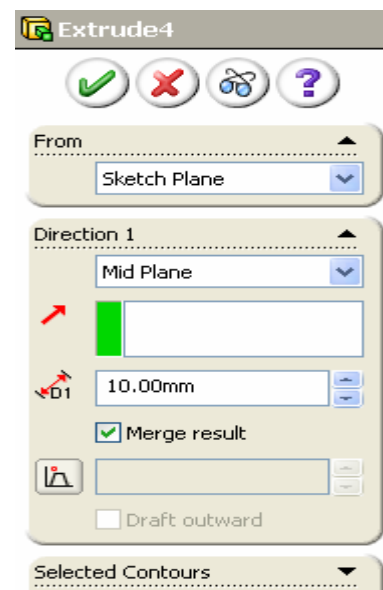
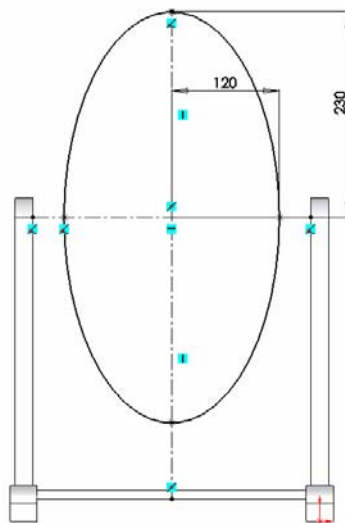
Select the **Major Axis** on the **Vertical** center line



and then the **Minor Axis** on the **Horizontal** center line.



Dimension the ellipse as shown below.

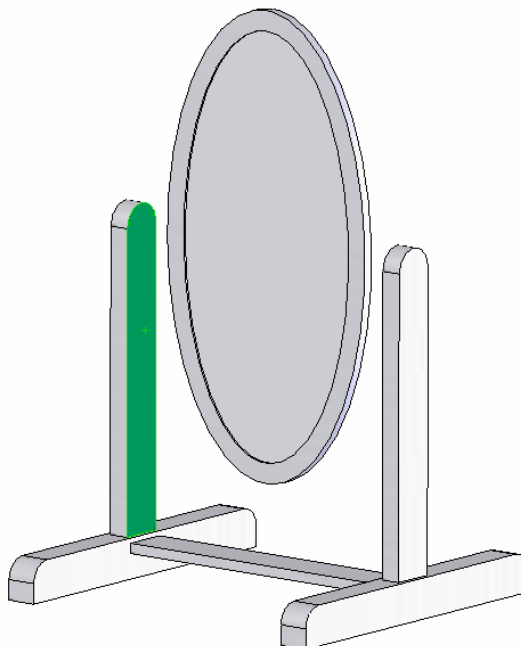
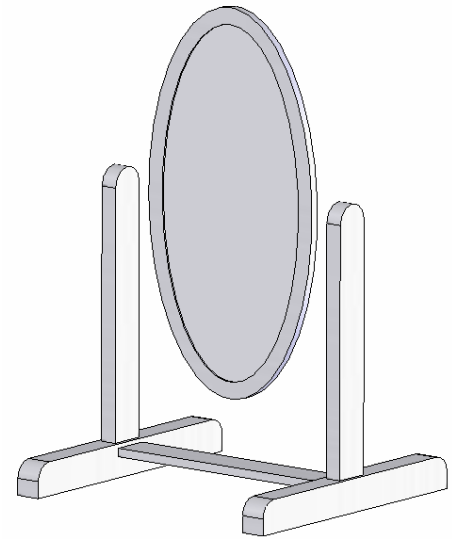
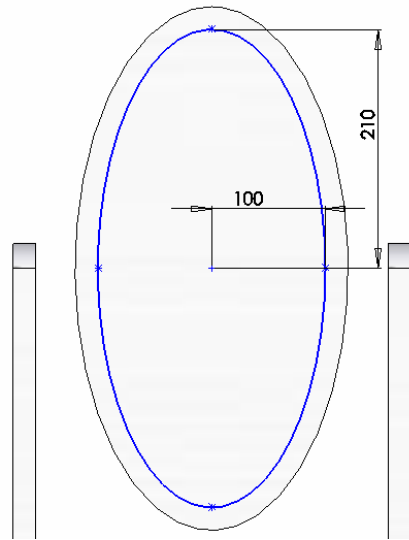


Rename the feature “**Elliptical Mirror Frame**”.

Glass Mirror

Sketch another ellipse on the front face of the elliptical frame and **Extrude Cut** it using the “**Blind**” condition to a distance of **2mm**.

Rename feature “**Glass Mirror**”.



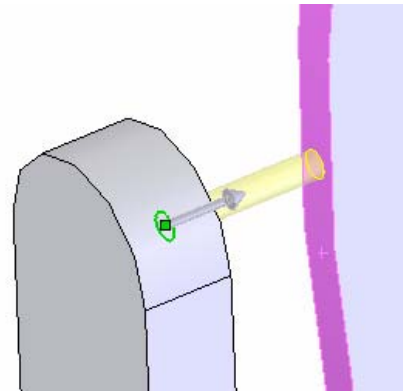
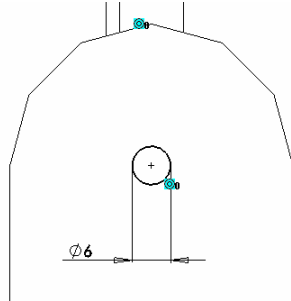
Insert Pivot

Sketch a circle, diameter “6mm”, on the inside face of the “**Right Leg**” and make it concentric with the round on the top of the upright. Extrude it up the surface of the “**Elliptical Mirror Frame**”.



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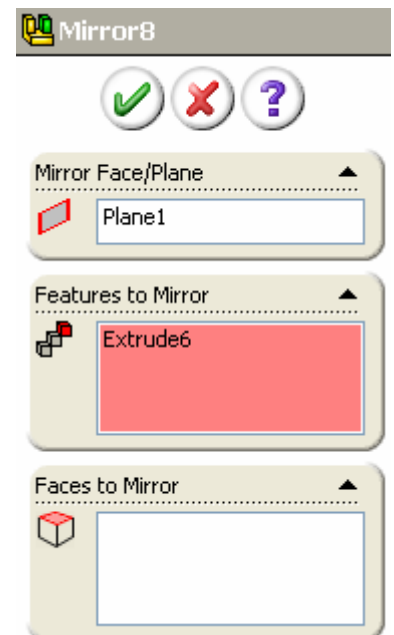
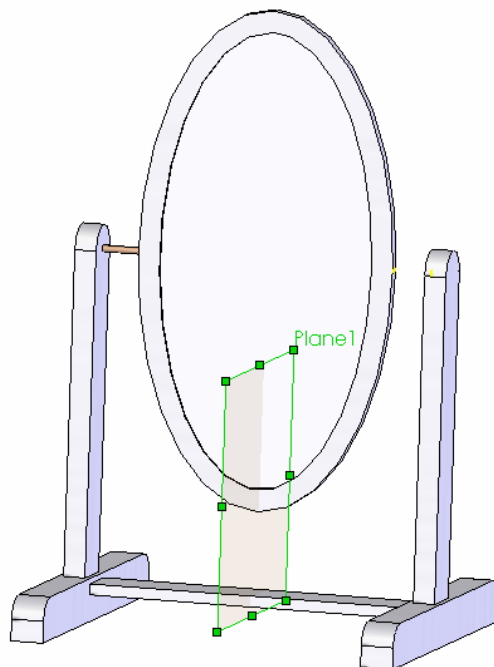
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Rename feature **“Pivot”**.

Mirror Pivot

Mirror **“Pivot”** feature around **Plane 1**.





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