





A. Sketch Rim.

Step 1. Click File Menu > New, click **Part Metric** and OK.

Step 2. Click **Front Plane**  in the Feature Manager and click **Sketch**  from the Content toolbar, **Fig. 1**.

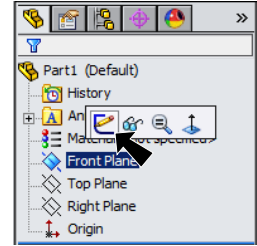



Fig. 1

Step 3. Click **Line**  (L) on the Sketch toolbar.

Step 4. Draw lines starting at the Origin , **Fig. 2**.

Step 5. **Right click graphics area and click Select** from menu to unselect Line tool.

Step 6. Click **bottom horizontal line** and click **Construction Geometry**  on the Context toolbar, **Fig. 3**.

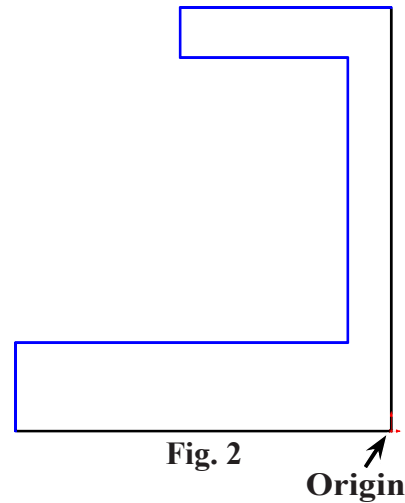


Fig. 2

Origin

B. Save as "RIM".

Step 1. Click File Menu > Save As.

Step 2. Key-in **RIM** for the filename and press ENTER.

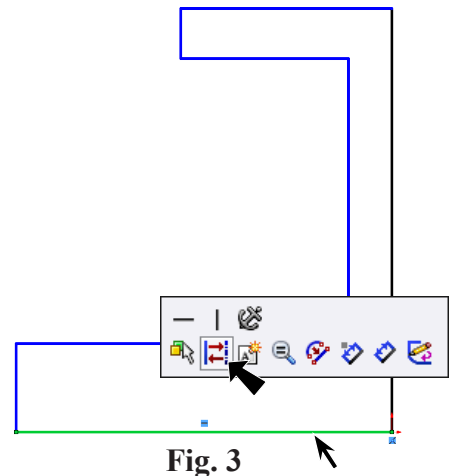


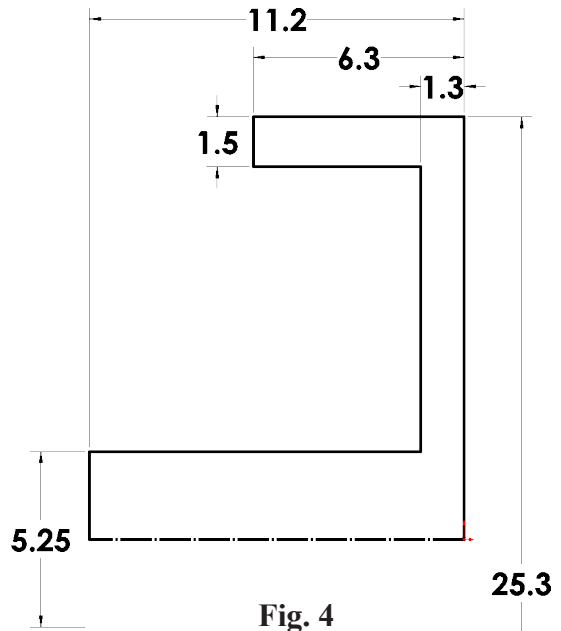
Fig. 3

C. Smart Dimension.

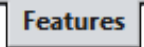
Step 1. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 2. Add dimensions, **Fig. 4**. Dimension double distance **25.3 rim diameter** and **5.25 hub diameter**. To double distance dimension, click a vertical line and then centerline, move the cursor below the centerline and click. Key-in dimension and press ENTER.

Step 3. Click **Zoom to Fit**  (F) on the View toolbar.



D. Revolved Boss/Base.

Step 1. Click **Features**  on the Command Manager toolbar.

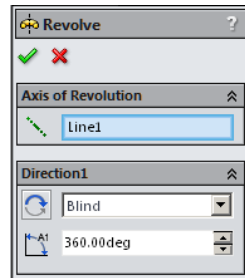
Step 2. Click **Revolved Boss/Base**  on the Features toolbar.

Step 3. Click **Yes** to close sketch message.

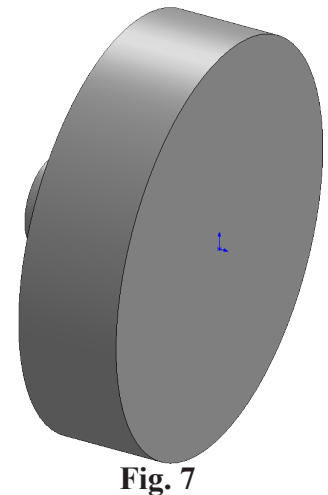
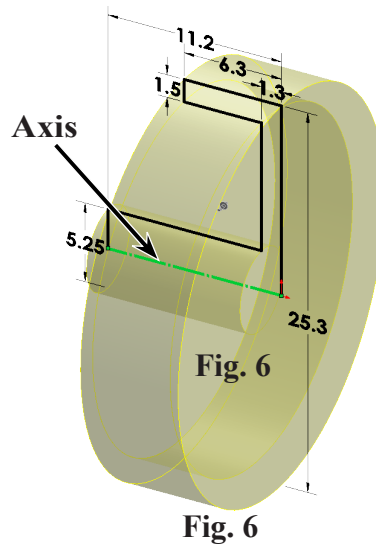
Step 4. In the Revolve Property Manger set:

Axis of Revolution  should be construction line, **Fig. 6**

click OK .




Step 5. Save. Use **Ctrl-S**.



E. Axle Hole.

Step 1. Rotate view slightly to view **inside of rim**, hold down middle mouse button (wheel) and drag to rotate view, **Fig. 8**.

Step 2. Click **front face of hub** and click **Sketch**  on the Content menu, **Fig. 8**.

Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Draw a circle for the hole starting at the Origin , **Fig. 9**.

Step 5. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 6. Dimension **diameter 1.8**, **Fig. 9**.

Step 7. Click **Features**  on the Command Manager toolbar.

Step 8. Click **Extruded Cut**  on the Features toolbar.

Step 9. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 10**

Depth  **5.5**
click OK .

Step 10. Save. Use **Ctrl-S**.

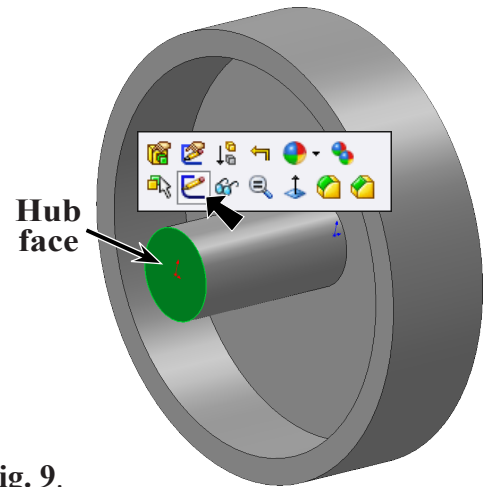


Fig. 8

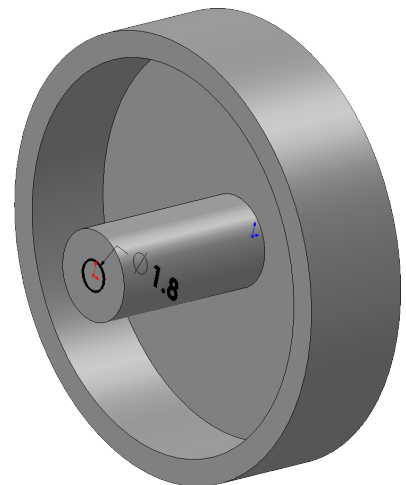


Fig. 9

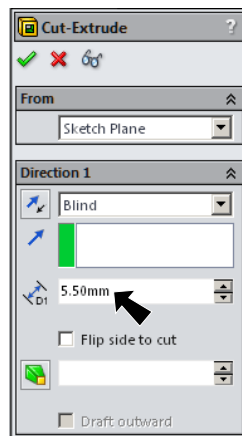


Fig. 10

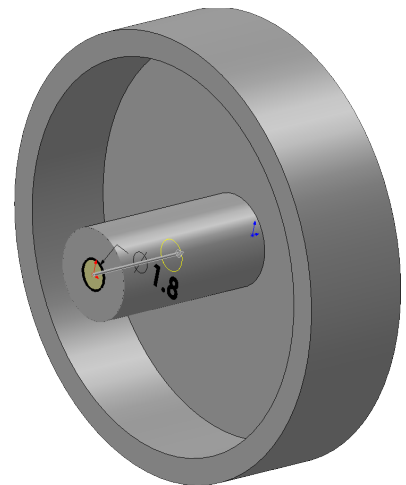




Fig. 11

F. Hole.

Step 1. Click **Trimetric**  on the Standard Views toolbar.

Step 2. Click **front face of Rim** and click **Sketch**  on the Content menu, **Fig. 12**.

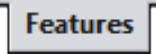
Step 3. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)


Step 4. Click **Circle**  (S) on the Sketch toolbar.

Step 5. Draw a circle for the hole starting at the Origin , **Fig. 13**.

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 7. Dimension **diameter 1.5**, **Fig. 13**.

Step 8. Click **Features**  on the Command Manager toolbar.

Step 9. Click **Extruded Cut**  on the Features toolbar.

Step 10. In the Cut-Extrude Property Manager set:
under **Direction 1**, **Fig. 14**

End Condition **Through All**
click OK .

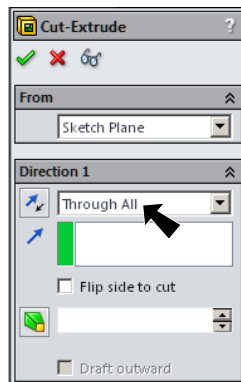


Fig. 14

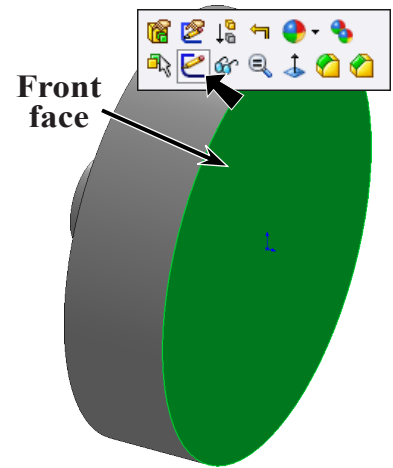


Fig. 12

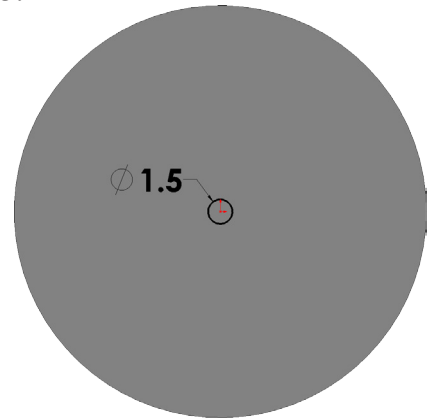


Fig. 13

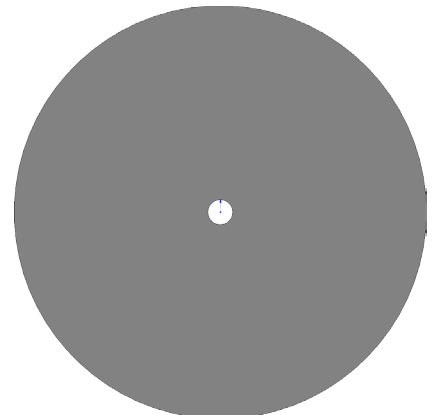
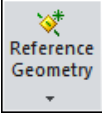


Fig. 15

G. Mate Reference.

Step 1. Click **Trimetric**  on the Standard Views toolbar.

Step 2. Click **cylindrical face of Rim** to select it, **Fig. 16**.

Step 3. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

Step 4. In the Mate Reference Manager:
under **Primary Reference Entity**, **Fig. 17**

Mate Reference Type 
Concentric
click OK .

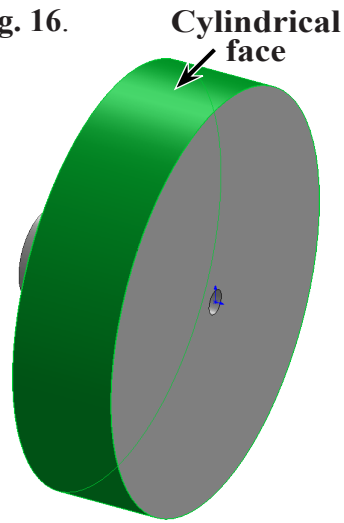


Fig. 16

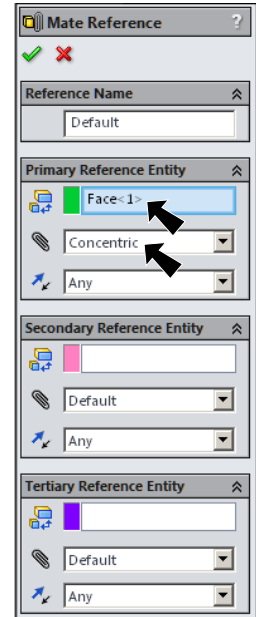



Fig. 17

H. Material ABS Plastic.

Step 1. **Right click Material**  in the Feature Manager and click **Edit Material**, **Fig. 18**.

Step 2. **Expand Plastic** in the material tree and select **ABS**. Click **Apply** and **Close**.

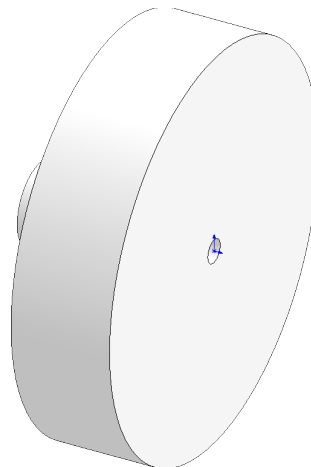


Fig. 19

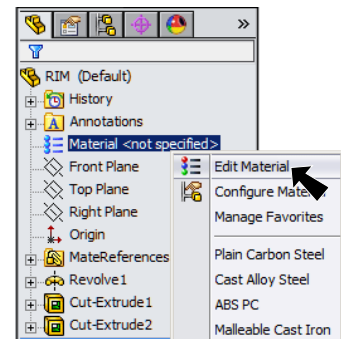


Fig. 18