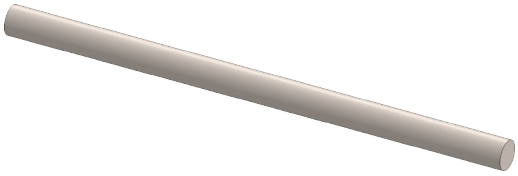
Simples Machines

Axle



A. Axle.

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

Step 2. Click **Right Plane** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 1**.

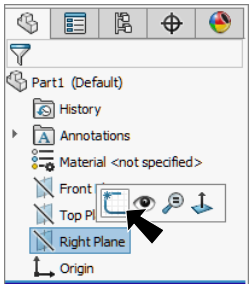


Fig. 1

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

Step 4. Sketch a circle starting at the Origin , **Fig. 2**.

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

Step 6. Dimension circle **diameter .15**, **Fig. 2**.

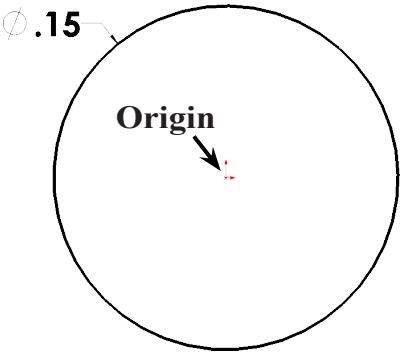


Fig. 2

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

Step 8. Click **Extruded Boss/Base** on the Features toolbar.

Step 9. In the Property Manager set:
under Direction 1, **Fig. 3**
End Condition **Mid Plane**
Depth **2.6**
click OK .

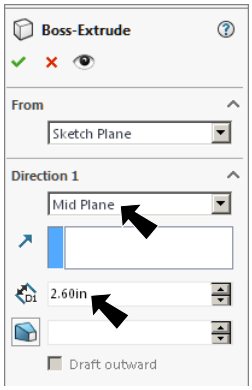


Fig. 3

Step 10. Click Zoom to Fit (**F**) on the View toolbar.

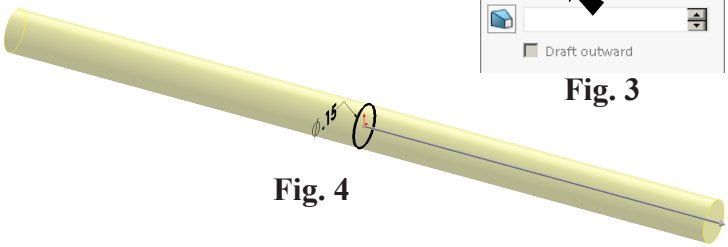


Fig. 4

B. Save as "AXLE".

Step 1. Click File Menu > Save As.

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

C. Mate References.

Step 1. Click **Right Plane** in the Feature Manager to select Plane, **Fig. 5**.

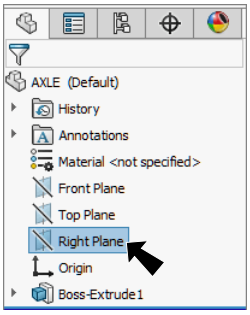


Fig. 5

Step 2. Click **Reference Geometry** on the Features toolbar and **Mate Reference** from the menu.

Step 3. In the Mate Reference Manager set:

under **Primary** Reference Entity, **Fig. 6**

Mate Reference Type **Coincident**

under **Secondary** Reference Entity

click in Entity box and click **cylindrical face of axle**, **Fig. 7**

click OK .

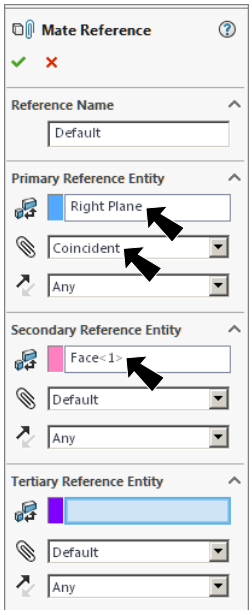


Fig. 6

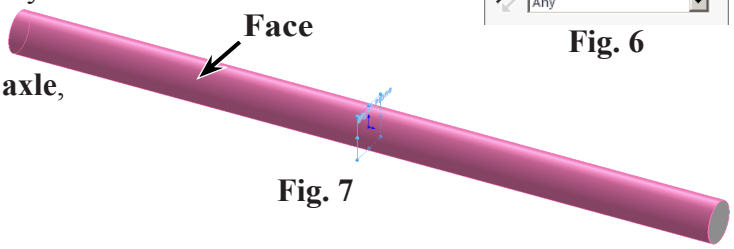


Fig. 7

D. Material Alloy Steel.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material**, **Fig. 8**.

Step 2. Expand **Steel** in the material tree and click **Alloy Steel**. Click **Apply** and **Close**.

Step 3. Save. Use **Ctrl-S**.

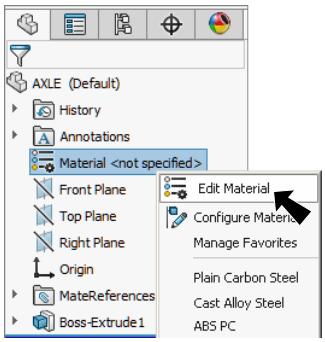


Fig. 8

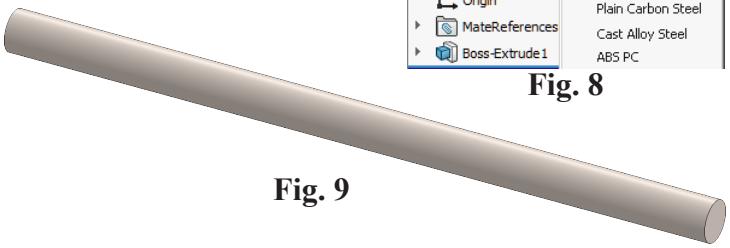


Fig. 9