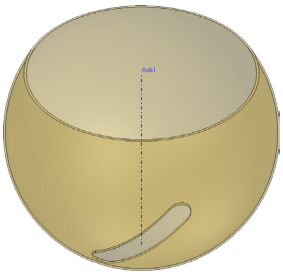
Chapter 18

JSS

# Ping Pong Ball



## A. Half Circle Sketch.

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

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

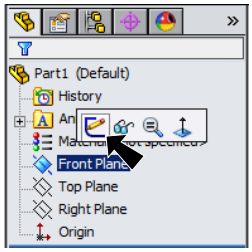


Fig. 1

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

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

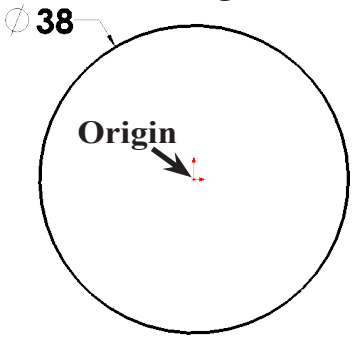


Fig. 2

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

Step 6. Dimension circle **diameter 38**, **Fig. 2**.

Step 7. Click **Line** **(L)** on the Sketch toolbar.

Step 8. Draw a vertical Line down thru the circle, **Fig. 3**. Draw center-line to circle quadrant points .

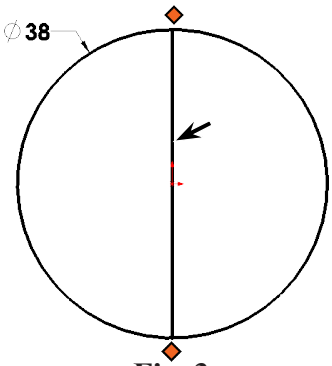


Fig. 3

Step 9. Click **Trim Entities** on the Sketch toolbar.

Step 10. In the Trim Property Manger select **Power Trim** , **Fig. 4**.

Trim away **arc right of vertical line**, **Fig. 5**. Drag across the arc to trim. Results shown in **Fig. 6**.

Click OK when done.

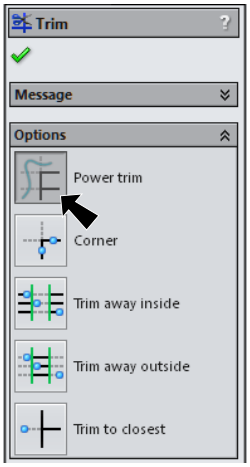


Fig. 4

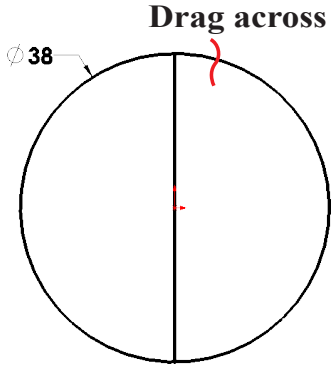


Fig. 5

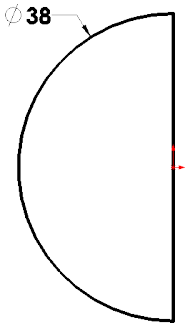


Fig. 6

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## B. Save as "BALL".

Step 1. Click File Menu > Save As.

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

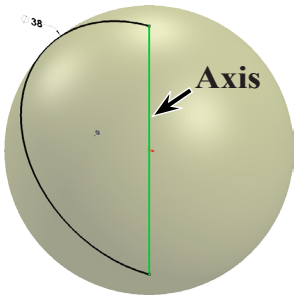

Fig. 8

## C. Revolved Boss/Base.

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

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

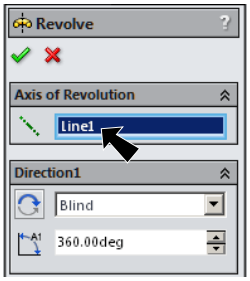

Fig. 7

Step 3. In the Revolve Property Manger:

for the Axles of Revolution
click **vertical line of sketch**, **Fig. 8**
click OK .

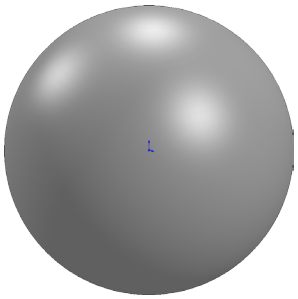
Fig. 9

## D. Extruded Cut.

Step 1. Click **Front Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 10**.

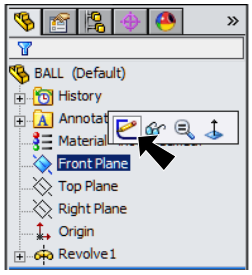

Fig. 10

Step 2. Click **Normal To** on the Standard Views toolbar. (**Ctrl-8**)

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

Step 4. Draw **horizontal line across Ball above Origin** , **Fig. 11**.

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

Step 6. Dimension **10** to Origin, **Fig. 11**.

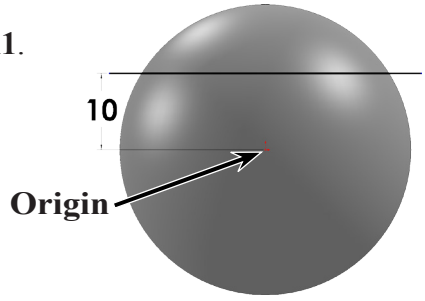

Fig. 11

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

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

Step 9. In the Cut-Extrude Property Manager set:
under Direction 1 and Direction 2, **Fig. 12**
End Condition **Through All**

The Direction arrow should point towards area to be cut away (up), **Fig. 13**.
If arrow is pointing in wrong direction, check **Flip side to cut**, **Fig. 12**.
click OK .

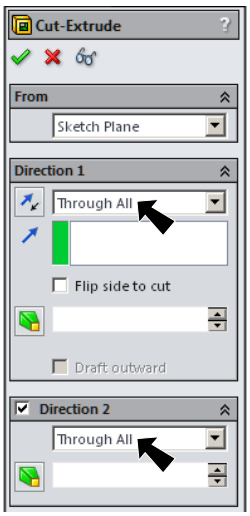

Fig. 12

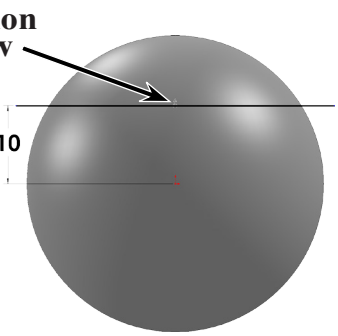

Fig. 13

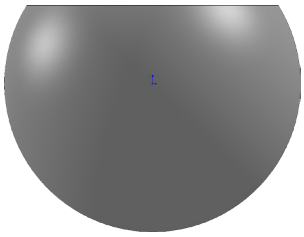
Fig. 14

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

## E. Shell.

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

Step 2. Click **Shell** Shell on the Features toolbar.

Step 3. In the Shell Property Manager set:
under Parameters, **Fig. 15**

**Distance** D1 **.3**
check **Show preview**
click **top face** of Ball, **Fig. 16**
click OK .

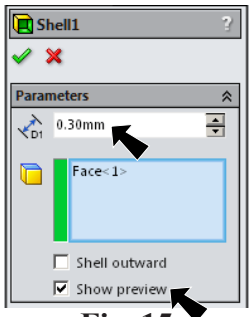

Fig. 15

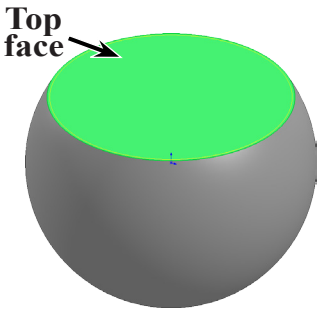

Fig. 16

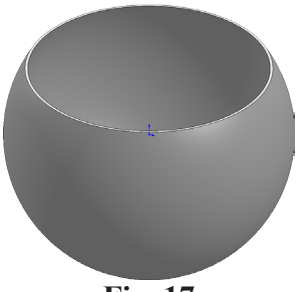
Fig. 17

Step 4. Save. Use **Ctrl-S**.

## F. Hole Wizard Slot.

Step 1. Click **Top** on the Standard Views toolbar. (**Ctrl-5**)

Step 2. Click **Hole Wizard** Hole Wizard on the Features toolbar.

Step 3. In the Property Manager, on the Type tab set:
under Hole Type, **Fig. 18**
click **Slot**
under Standard:
select **ANSI Inch**
under Type:
select **Screw Clearances**
under Size:
select **#5**
uncheck **Show custom sizing**
Slot length: **.7**
under End Condition
End Condition **Through All**

click **Positions tab** Positions at top of the Property Manager.

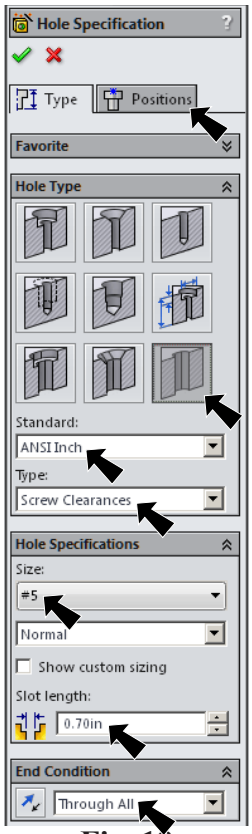

**Fig. 18**

Step 4. Expand the flyout Feature Manager design tree (click +) in the top left corner of the graphics area and click **Top Plane** face/plane to locate slot, **Fig. 19**.

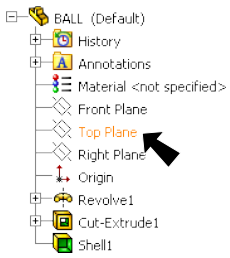

**Fig. 19**

Step 5. Click the **Origin** to locate slot, **Fig. 20**.

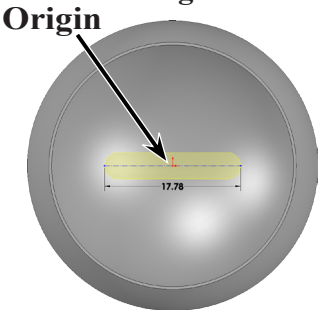

**Fig. 20**

Step 6. **Right click graphics area and click Select** from menu to unselect Point tool.

Step 7. Click the **centerline** of slot (you might have to drag the dimension off the centerline) and click **Make Vertical** on the Context toolbar, **Fig. 21** and **Fig. 22**.

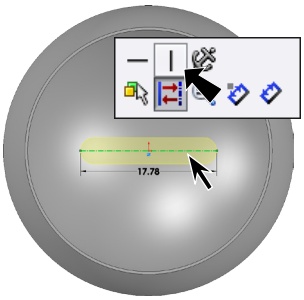

**Fig. 21**

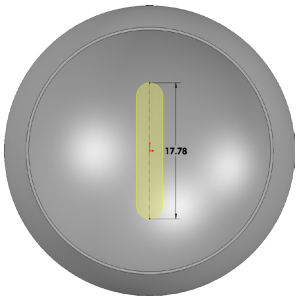

**Fig. 22**

Step 8. Click OK in the Hole Wizard Property Manager.

Step 9. Save. **Ctrl-S**.

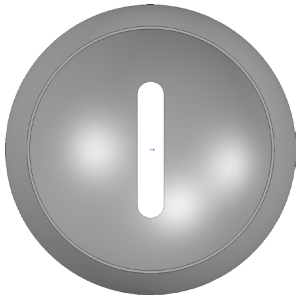
**Fig. 23**

## G. Create Axis.

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

Step 2. **Ctrl click Front Plane** and **Right Plane** in the Feature Manager and to select both, **Fig. 24**.

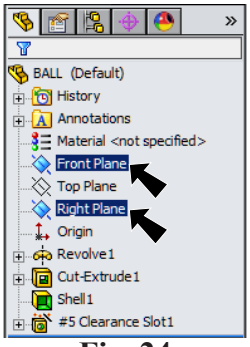

Fig. 24

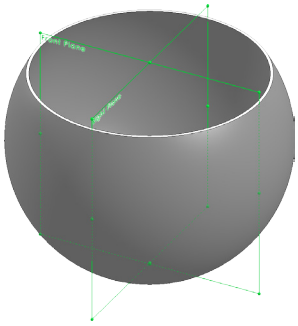
Fig. 25

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

Step 4. In the Axis Property Manager click OK and Cancel , **Fig. 26**.

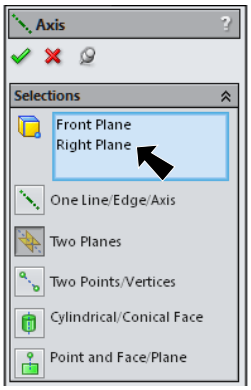

Fig. 26

## H. Material Plastic CA.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material**, **Fig. 27**.

Step 2. Expand **Plastics** in the material tree and click **CA**. Click **Apply** and **Close**.

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

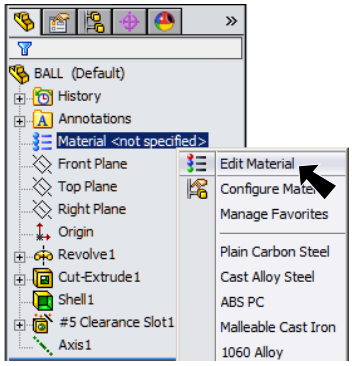

Fig. 27

## I. Appearance.

Step 1. Click the part to select the part, click **Appearance Callout** on the Context toolbar and click **BALL**, **Fig. 28**.

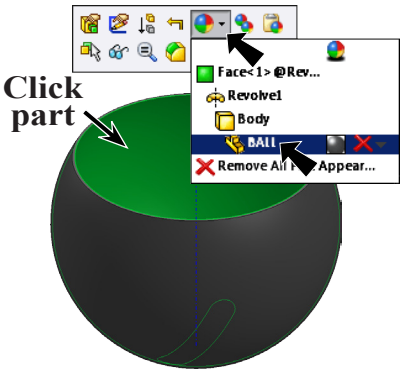

Fig. 28

Step 2. In the Appearances Property Manager
under Color, **Fig. 29**
set **RGB values**
**R 255**
**G 217**
**B 87**
click OK .

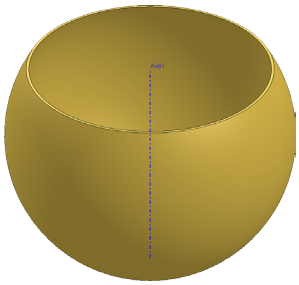
Fig. 30

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

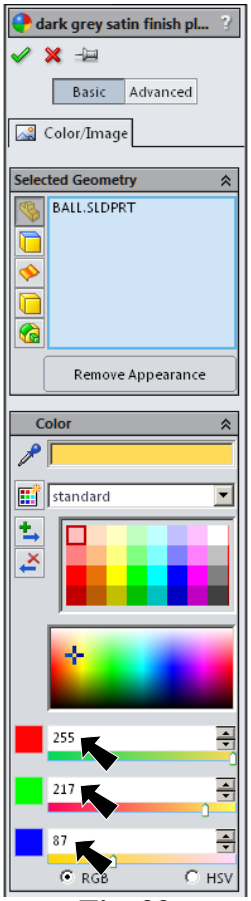

Fig. 29