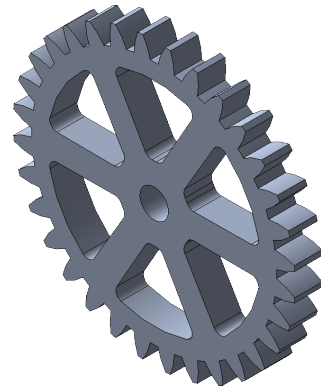


Solar Train Gear 32T



A. Toolbox New Part Spur Gear 32T.

Step 1. Click **Design Library** tab  in the Task Pane, **Fig. 1**.

Step 2. Expand the **Toolbox** 
Expand **ANSI Metric** folder 
Expand **Power Transmission** folder 
Click **Gears** folder 

Step 3. In the lower pane, **right click Spur Gear** and click **Create Part** from menu, **Fig. 1**.

Step 4. In the Component Property Manager set:
under Properties, **Fig. 2**

Module: .9
Number of Teeth: 32
Pressure Angle: 20
Face Width: 3
Hub Style: None
Nominal Shaft Diameter: 3
Keyway: None

click OK .

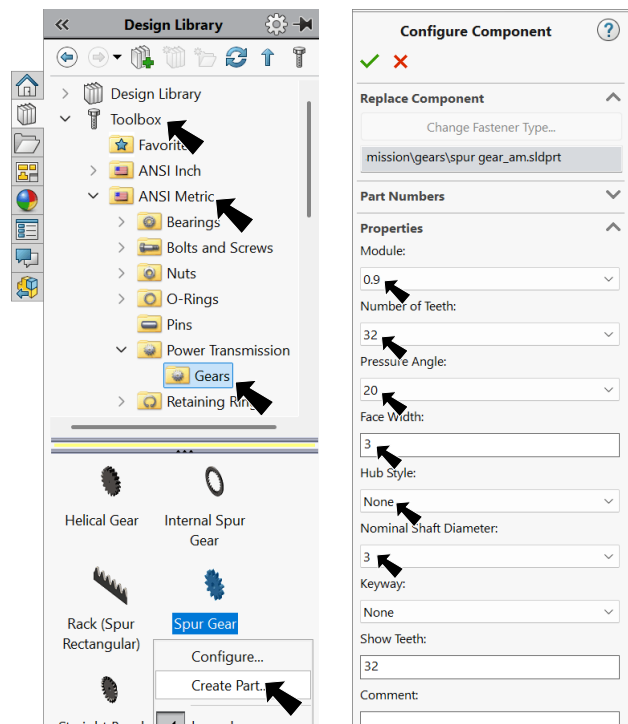


Fig. 1

Fig. 2

B. Save as "GEAR 32T".

Step 1. Click File Menu > Save As.

Step 2. In the Save As dialog box:
key in **GEAR 32T** for file name.

Navigate to your **My Documents/**
Tech Ed 25-26/Solar Train folder
click **Save**, **Fig. 4**.

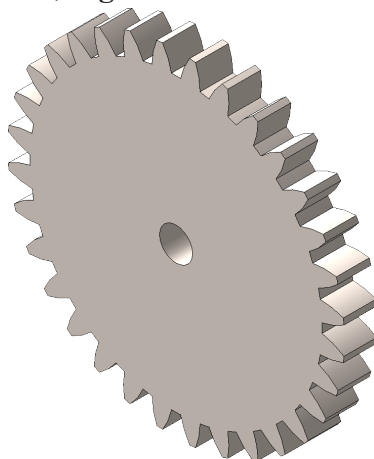


Fig. 3

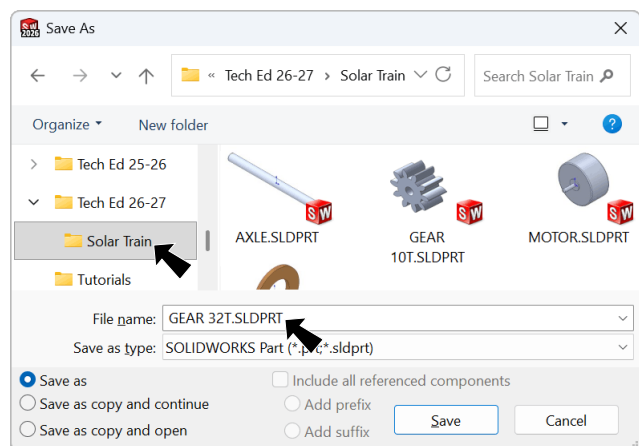


Fig. 4

C. Change Bore Diameter.

Step 1. Click **Bore**  in the Feature Manager and click **Edit Sketch**  on the context toolbar, **Fig. 5**.

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

Step 3. Change Bore diameter to **3.1**, **Fig. 6**. Clearance .1 of Axle.

Step 4. Click **Exit Sketch**  on the Sketch toolbar,.

Step 5. Save  (**Ctrl-S**).

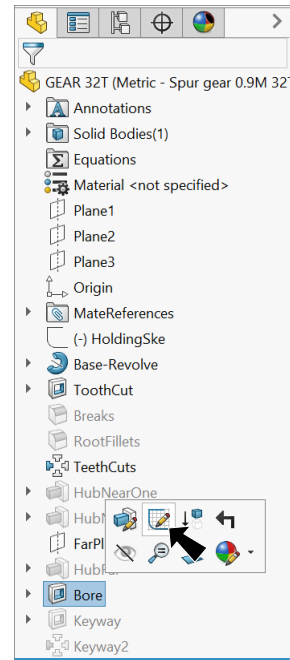


Fig. 5

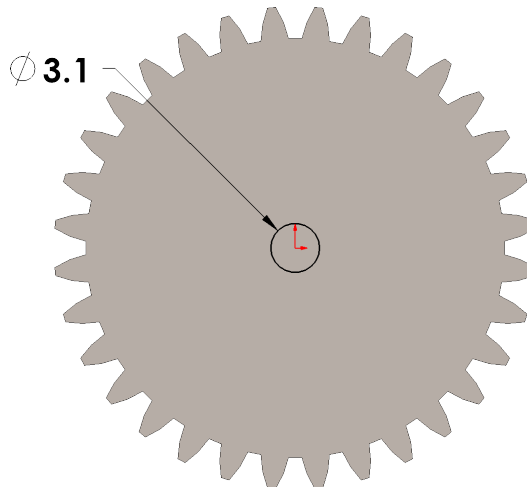


Fig. 6

D. Spokes.

Step 1. Click **Plane3**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 7**.

Step 2. Click **Circle**  (S) on the Sketch toolbar.

Step 3. Sketch **two circles at Origin** , **Fig. 8**.

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

Step 5. Dimension **diameters 23.1 and 8**, **Fig. 8**.

Step 6. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 7. Sketch a **vertical centerline from the Origin**  **up to outside circle**, **Fig. 9**.

Step 8. Click **Line**  (L) on the Sketch toolbar.

Step 9. Sketch **two lines at angle to both circles**, **Fig. 10**.

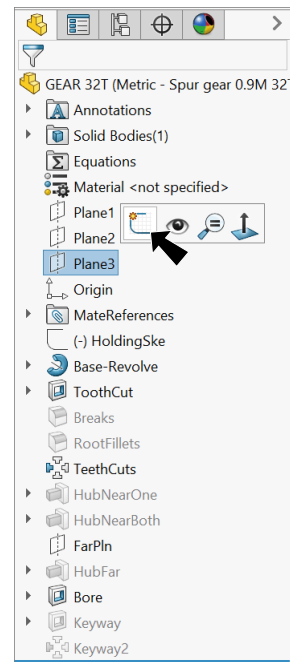


Fig. 7

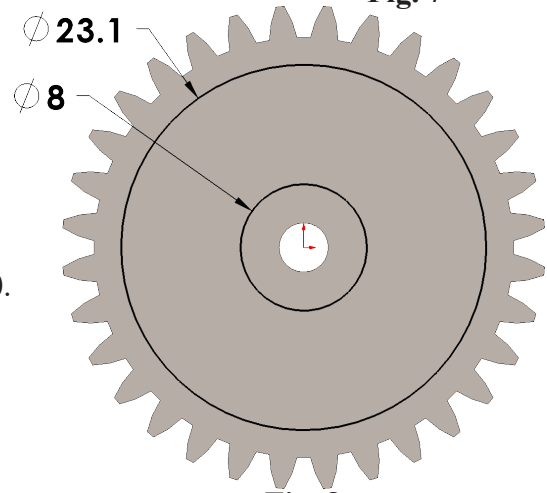


Fig. 8

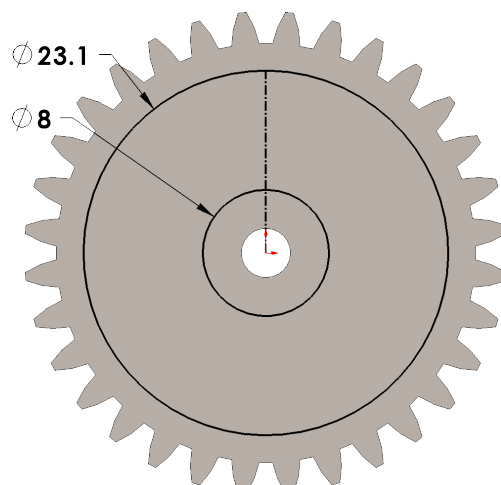


Fig. 9

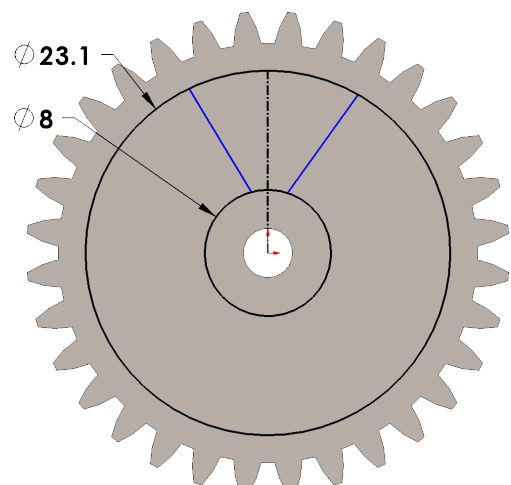


Fig. 10

Step 10. **Unselect Line tool.** To unselect, right click graphics area and click Select  from menu.

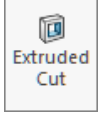
Step 11. **Drag a selection to left to cross angled lines and centerline.** Click **Make Symmetric**  on the context toolbar, Fig. 11.

Step 12. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 13. Add dimensions, Fig. 12.

Step 14. Click **Isometric**  on the Standard Views toolbar.

Step 15. Click **Features**  on the Command Manager toolbar.

Step 16. Click **Extruded Cut**  on the Features toolbar.

Step 17. In the Cut-Extrude Property Manager set:

under Direction 1, Fig. 13

End Condition **Through All**

Reverse Direction 

under Selected Contours

click the **two contours**, Fig. 14

click OK .

Step 18. Save  (Ctrl-S).

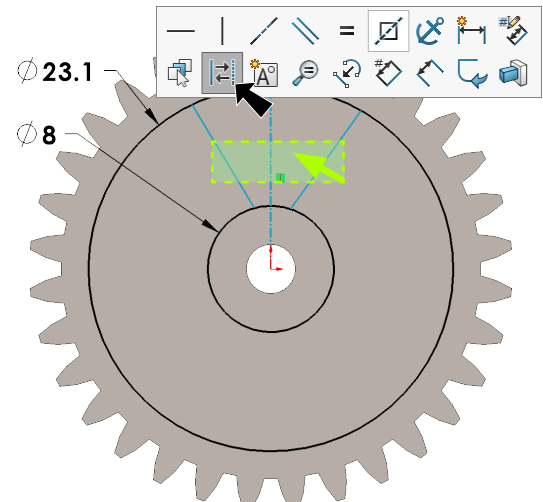


Fig. 11

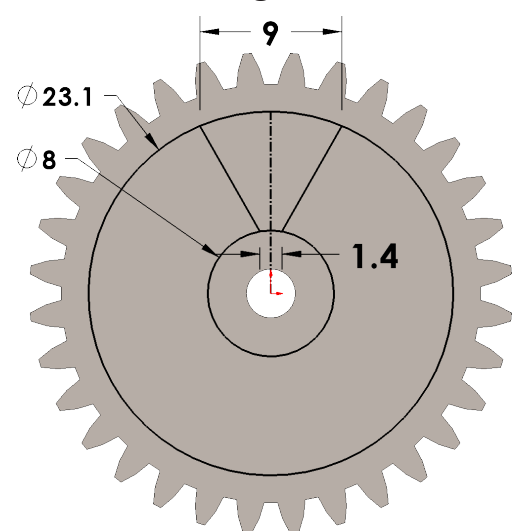


Fig. 12

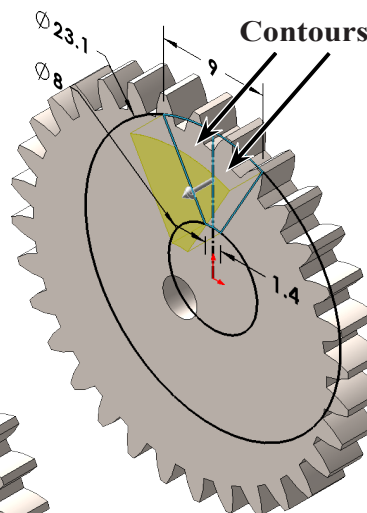


Fig. 14

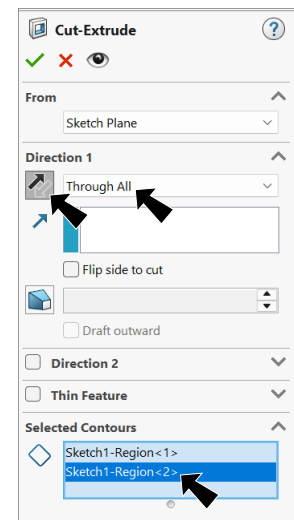


Fig. 13

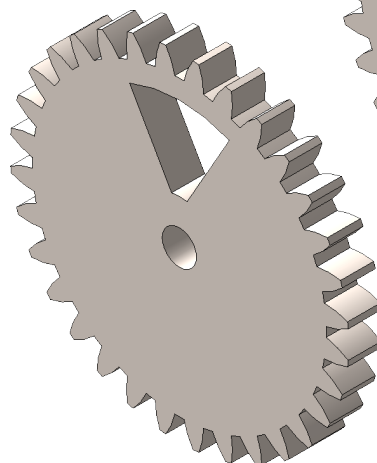


Fig. 15

E. Fillets.

Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, Fig. 16

Radius  **.8**

click an **inside edge**, Fig. 17

click **Connected to start loop**  **3 Edges** on the Fillet pop-up

click OK .

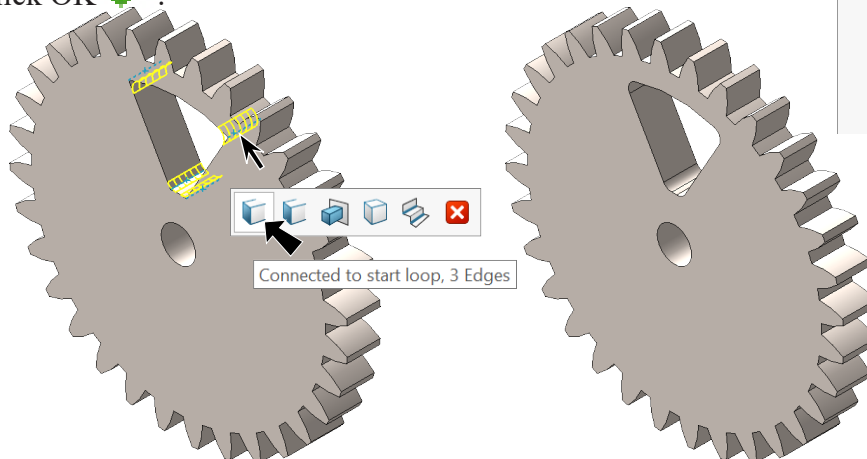


Fig. 17

Fig. 18

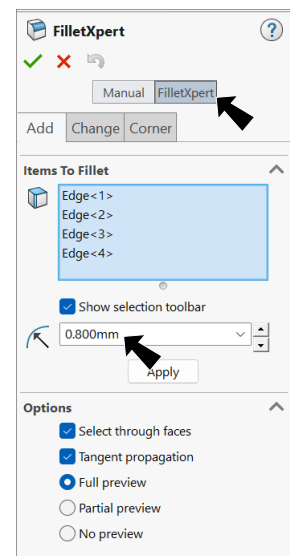
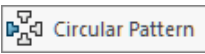


Fig. 16

F. Circular Pattern.

Step 1. Click **Circular Pattern**  in the **Linear Pattern** flyout  on the Features toolbar.

Step 2. In the Circular Pattern Property Manager set:

under Features and Faces, Fig. 19

click **Cut-Extrude2** and

Fillet1 in graphics area, Fig. 20

under Direction 1

click in **Pattern Axis**  box

click a **cylindrical face**

select **Equal spacing**

Number of Instances  **6**

click OK .

Step 3. Save  (Ctrl-S).

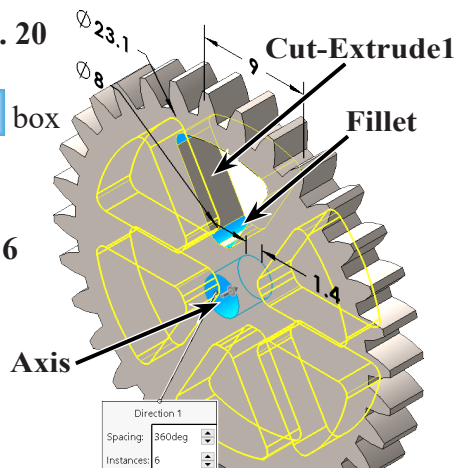


Fig. 20

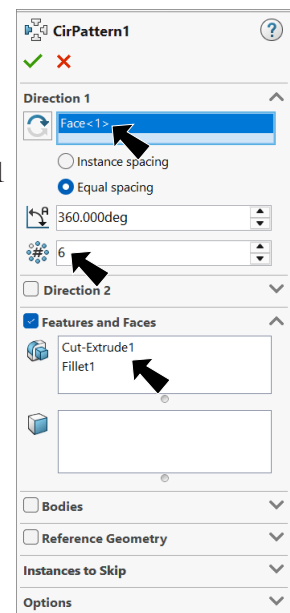


Fig. 19

G. Appearance: Blue Gray Plastic.

Step 1. Click part, click **Appearance Callout**  on the context toolbar and click **GEAR 32T** , Fig. 21.

Step 2. In the Appearances Task pane, expand **Plastic**, click **Medium Gloss** and in the lower pane select **blue medium gloss plastic**, Fig. 22.

Step 3. In the Appearances Property Manager set:
under Color, Fig. 23
set RGB values
R 148
G 159
B 181
click OK .

Step 4. Save  (Ctrl-S).

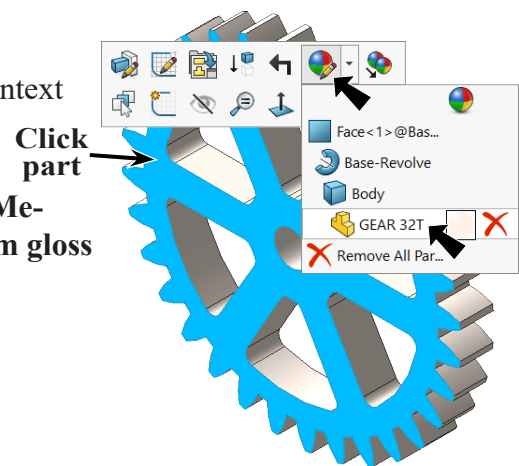


Fig. 21

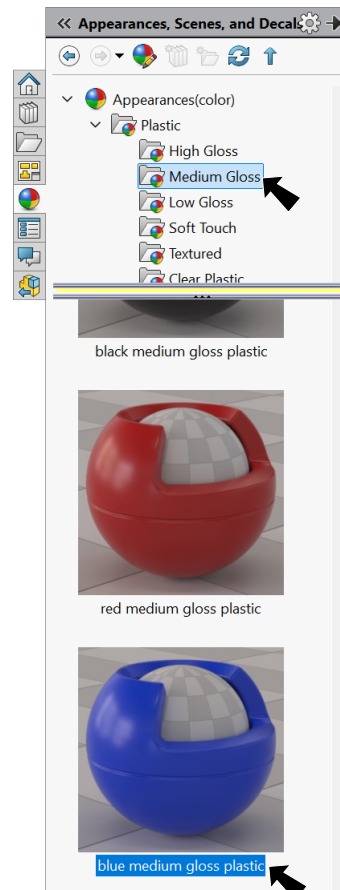


Fig. 22

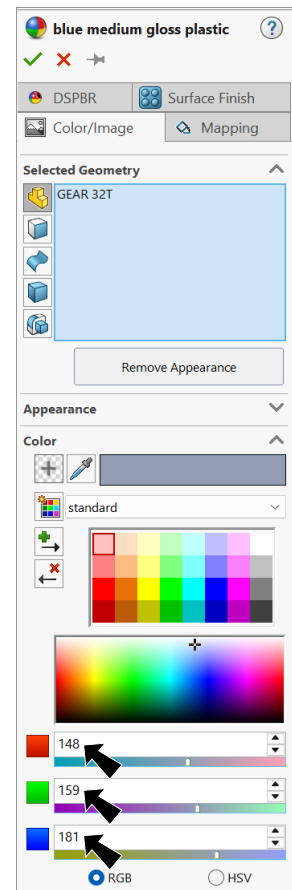


Fig. 23

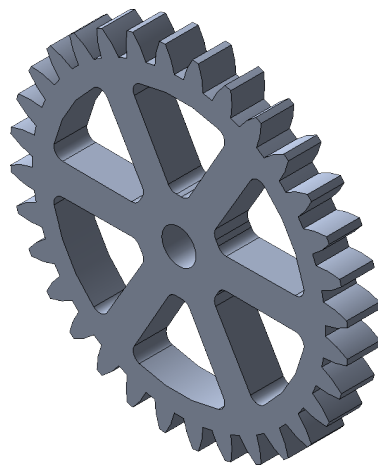


Fig. 24