ME 301 Revolve and Pattern Assignment

Using Revolved features and Patterns, create a solid model of the pulley shown below. This is taken from a 1945 text by Svensen. The outside diameter of the pulley is 16" and is ½" thick. The crown at the center of the pulley is 3/16" and was used to keep the belt running true. There are six ribs ½" thick and six holes 1" diameter equally spaced on a 9" bolt circle. The bosses are 2 1/8" diameter, protrude ⅛" out from the surface, and are filleted with ¼" radii. All reentrant corners also are filleted with ¼" radii. Other dimensions are on the figure.

You will receive three separate homework scores for: (1) your pre-CAD plan, (2) your process documentation and (3) your products. These will be evaluated using the criteria given on the following checksheet.
CHECKSHEET FOR REVOLVE & PATTERN ASSIGNMENT

NAME:

Pre-CAD Plan

___ Identification of Origin/Axes

___ Thoughtful choice of initial feature (extrude, revolve, etc.)

___ Thoughtful selection of sketch planes

___ Identification of lines of symmetry, patterned features, and associated reference geometry

___ Listing of notes and assumptions (i.e., all fillets have same radius)—keep a running record as the project progresses

Process Documentation

___ Illustration & Discussion of Sketches (including relations and reference geometry)

___ Illustration & Discussion of Pattern Features (including order of implementation)

___ Rationale for Drawing Organization (views to present and their order)

___ Annotated Design Tree (showing sketches underneath all features)

___ Lessons Learned (at least three along with substantive explanation)

Products

___ Fully Defined Sketches

___ Accurate/Attractive Solid Model

___ Use of ME Drawing Template

___ Thoughtful Selection of Views with the 3rd Angle System

___ Clear/Complete Dimensioning