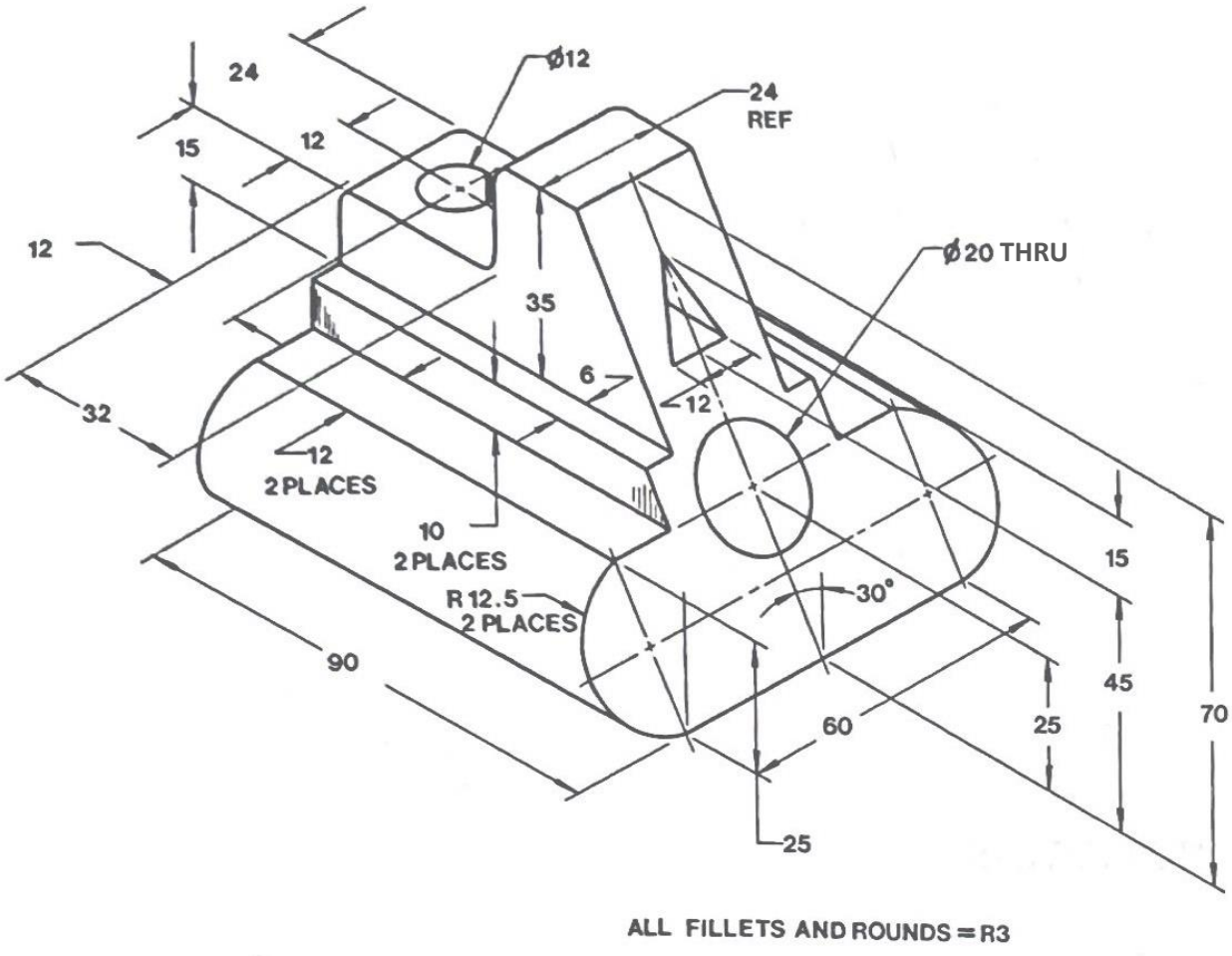
AME 211 – Computer-Aided Drafting and Manufacturing, Spring 2024

Homework 09

Using SolidWorks, create first a model tree (write down a list of actions describing how you intend to create the model – "create extrusion 'abc', create extruded cut 'def'…"), then create the solid model from [Bethune, p279, modified, see below]. Dimensions are shown in millimeters, the appropriate unit system in SolidWorks should be used. Create a SolidWorks drawing showing all necessary views, one of which has to include a broken-out section showing the entire depth of the ø12 hole on the left. The cylindrical part of this drilled hole is to be 40mm deep. The R12.5 rounds are to be full 180°, ending tangentially to the horizontal faces (they should have been dimensioned on the opposite end of the part). The triangular pocket ends at the face that contains the ø12mm hole (just breaking through the vertical face). Add all dimensions and make sure not to include any duplicates. Save model and drawing in the respective native SolidWorks formats (SLDPRT and SLDDRW). Also save the drawing in PDF format. All sketches have to be fully defined - moving any part of any sketch must not be possible. Use Pack and Go and upload the resulting ZIP file together with the PDF version of the drawing and a PDF file of the model tree to D2L.



Problem 1	
Item	**Grade**
Use of Solidworks	**10**
PDF of model tree	**15**
All necessary views shown as described	**30**
Appropriate unit system	**5**
Sketches fully defined	**20**
Consistency of dimensions (correct values), all dimensions shown, no duplicates	**15**
Upload of parts file and drawing in a single ZIP file, plus PDF of drawing	**5**
Total	**100**

Grading rubric definitions

Necessary number of views: Necessary number of views means choosing the views that have the fewest hidden lines and show essential contours or shapes most clearly.

- Adequately represent the object.
- Use the combination that fits best on the paper.
- The right and left views (top and bottom views, front and rear views) do not need to be shown both.

Use of constraints: Constraints and (o)snap features are used on drawing elements as required to generate accurate drawings.

Consistency of dimensions: Dimensions that are used to create the drawings follow the dimensions given in the figure

- In terms of units (e.g., inch or millimeter).
- Length of the lines compared to each other. For instance, if two lines have lengths of 2 mm and 4 mm, the length of the first line should look like half of the other line.

Cleanness and use of construction lines: The constructions lines are used to layout different parts of the drawing such as lines (and edges), centers, segments, and circles to ensure that (not limited to)

- The lines (and edges) that are parallel or vertical stay parallel or vertical
- Angles between the lines stays consistent with the given drawing
- Arcs follow the curvature and radius of the circle that they belong to

Adding dimensions properly:

- Use of dimensions lines
- Appropriate placement of dimensions
- All dimensions are listed
- No extra/redundant dimensions
- Use of correct notation