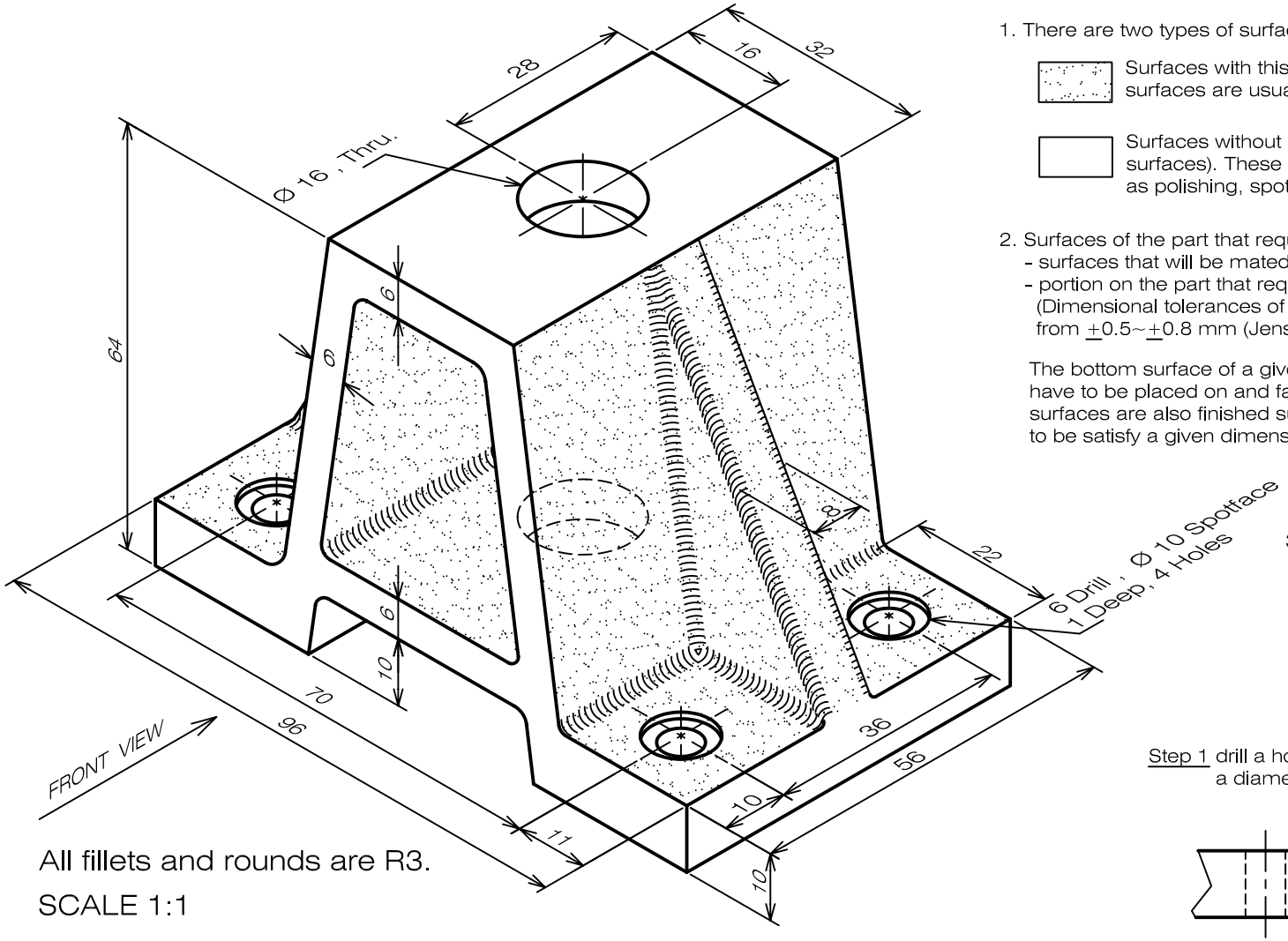
Draw front and top views of the following object with a completed dimensions. Draw in scale 1:1 on A4 sheet.

(Problem is adapted from "Fundamentals of Graphics Communication " by Bertoline)



All fillets and rounds are R3.

SCALE 1:1

What can we learn from the drawing ?

1. There are two types of surfaces shown in the drawing of the part.

   Surfaces with this kind of hatching are rough surface. These surfaces are usually found in parts produced by sand-casting.

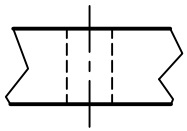
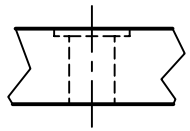
   Surfaces without hatching are smooth surfaces (or finished surfaces). These surfaces are produced by machining such as polishing, spotface, grinding etc.

2. Surfaces of the part that require surface finishing are
   - surfaces that will be mated or assembled to another part.
   - portion on the part that requires an accurate dimensions. (Dimensional tolerances of a part made by sand casting is ranged from $\pm$0.5~$\pm$0.8 mm (Jensen et al.).)

   The bottom surface of a given part are finished surface because the part have to be placed on and fastened to another part. The front and rear surfaces are also finished surface because the the depth of the part have to be satisfy a given dimension.

3. The note 6 Drill, Ø10 Spotface, 1 Deep specifies that the part is drilled to produce a hole with a diameter of 6 mm and then finish a round spot on the rough surface of a casting at a drilled hole. The purpose is to provide a smooth seat for a bolt or screw head. Steps in producing a spotface is explained in the following figures.

Step 1 drill a hole having a diameter of 6 mm.



Step 2 finish a round spot having a diameter of 10 mm with a depth of 1 mm.