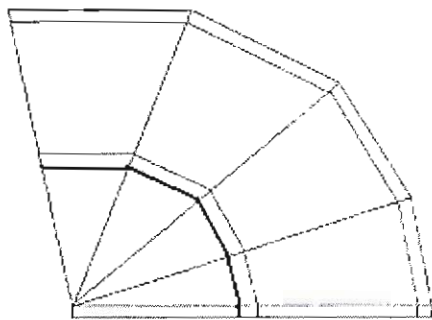
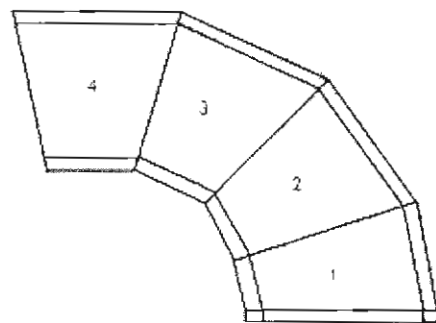


Layout



Semi finished pattern



Pattern

Exercise No:  
Date:

## HOPPER MAKING

### AIM

To make a Hopper of given size from a sheet metal piece.

### APPLICATION

Flour mill, Chimney, AC Duct etc

### SUPPLIED MATERIAL SPECIFICATION

Galvanized Iron sheet of dimensions 200mm x 150mm, Thickness 26 gauge

### TOOLS REQUIRED

- |               |            |                 |                  |                         |
|---------------|------------|-----------------|------------------|-------------------------|
| 1. Steel rule | 2. Scriber | 3. Steel square | 4. Straight snip | 5. Anvil or Bench plate |
| 6. Stake      | 7. Mallet  |                 |                  |                         |

### SEQUENCE OF OPERATIONS

I. Checking II. Layout Marking III. Shearing IV. Folding V. Locking and Seaming

### WORKING STEPS

#### I. Checking

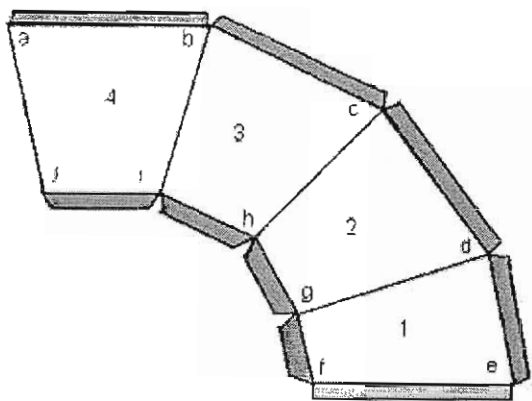
1. Check whether the given sheet is having its dimension as 200mm x 150mm. If the dimension is excess trim off using hand shear.
2. Keep one corner of the sheet between body and tongue of steel square and check whether the sides exactly coincides with steel square.
3. Keep this corner as reference corner and these two sides as reference sides . This corner should be kept at left hand side bottom position.

#### II. Layout Marking

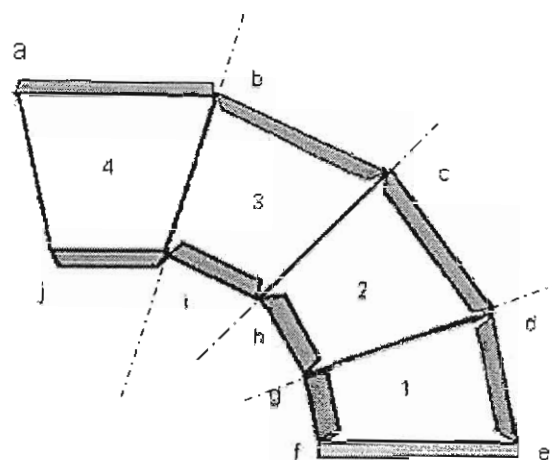
1. Place the given sheet over working table so that the side of dimension 200mm is horizontal. From left bottom corner take 50mm and make dot with punch. Name this dot as 'O'.
2. Using divider keep 145mm between its legs and with 'O' as centre and 145mm as radius draw an arc. Name the intersection of arc and horizontal edge as 'e'. Set 65mm in divider, from 'e' intersect an arc at 'd'. With same measurement from 'd' cut an arc at 'c'. Similarly mark 'b' and 'a'. Join ed, dc, cb and ba by straight lines using steel rule and scriber. Join oe, oc, ob and oa also. Provide 5mm seam allowance and also 5mm hem allowance.
3. Draw an arc of radius 65mm from O and mark g,h,i,j,k over that using divider with the measurement of 25mm. Join gh,hi,ij,jk using steel rule and scriber. The area between Oae is the required sheet.

#### III. Shearing

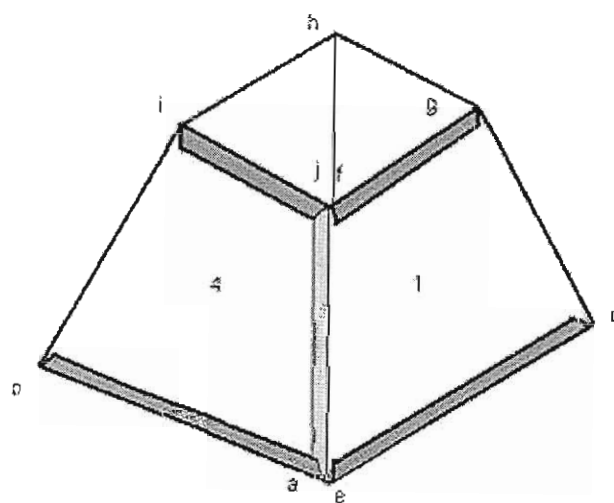
1. To remove unwanted portion cut along the direction shown by arrows.
2. Similarly cut along the dark line shown in figure to remove the bottom portion.



Pattern with seam and hem allowances



Pattern with seam folded



Finished Honner

#### **IV. Folding**

1. Make a small cut at all corners of the seam portion as shown.
2. Keep the pattern over taper stake such that the line gf aligns with edge of the stake. Using mallet fold that seam portion 180° outwards.
3. Similarly fold all the seams except the seam in portion 4.
4. Place the sheet over stake such that edge ef aligns with stake edge and fold the hem portion 90° downwards.
5. Adjust the sheet such that the dotted line gd aligns with stake edge. All the seam should be placed outside. Fold the portion '1' downward 90° using mallet.

#### **V. Locking and Seaming**

1. Now the edges 'fe' and 'ja' will be touching each other . Fold the seam of portion 4 outwards 180° so that it locks the hem.
2. Check for the dimensions.

#### **RESULT**

Thus the required hopper is made out of the given sheet metal piece.