

- paint surfaces back to front manner.

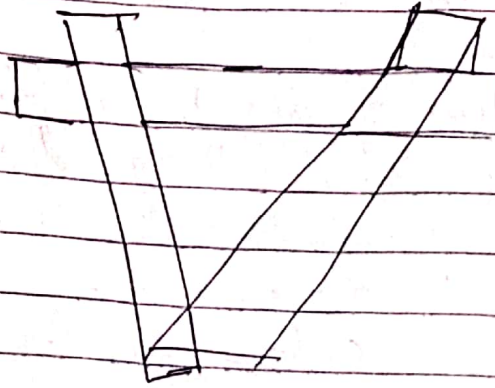
### Painter's Algorithm (Depth Sorting method)

- The painter's algorithm uses both object space and image space method for visible surface detection.
- The painter's algorithm is also called depth sort algorithm or priority fill algorithm.
- The painter algorithm simulates how a painter typically produces his/her painting by starting with the background and then progressively adding new (earer) objects to the canvas. Thus, each layer of paint covers up the previous layer.
- Similarly, we first sort surfaces according to their distance from the view plane. The intensity value of the farthest ~~object~~ surface are then entered into the refresh buffer. Taking each succeeding surface in turn (in decreasing depth order), we paint the surface intensities onto the framebuffer over the intensities of the previously processed surfaces.
- The conceptual steps that are performed in depth-sort algorithm are
  - ① Sort all polygons according to the ~~smallest~~ (farthest) ~~z-coordinate~~ of each, decreasing depth or largest value of  $z$ .
  - ② Now, scanning to convert the various surfaces which is in the order (starting with the surface which has greatest depth).
  - ③ Comparing is to be done on the basis of various overlapping surfaces so that the user will determine which surface is to be kept visible.
  - ④ In the refresh buffer, enter the intensity value for the determined surface i.e. the surface which is determined to be visible.
  - ⑤ The above process is going to be repeat for all the available surfaces.



### problem

→ one of the major problem in this algorithm is intersecting polygon surfaces as shown in below figure.



- Different polygons may have same depth.
  - The nearest polygon could also be furthest.
- We cannot use simple depth-sorting algorithm to remove the hidden surfaces in the images.

### Solution

→ For intersecting polygons, we can split one polygon into two or more polygons which can then be painted from back to front. This needs more time to compute intersection between polygons. So, it becomes complex algorithm for such surface existence.