



**MANIPAL INSTITUTE OF TECHNOLOGY**  
**MANIPAL**  
*(A constituent unit of MAHE, Manipal)*

**Department of Mechanical and Manufacturing Engineering**

# **ENGINEERING GRAPHICS - II**

**CLASS 3: DEVELOPMENT OF SURFACES**

**(SHEET 3)**

## QUESTION BANK: DEVELOPMENT OF SURFACES PROBLEM 2

A vertical cylinder with base diameter 50 mm and axis 80 mm is resting with its base on HP. Such a cylinder is cut in ways as shown in the front views in fig D-2. Draw the development of the lateral surfaces of the cylinder in each case.

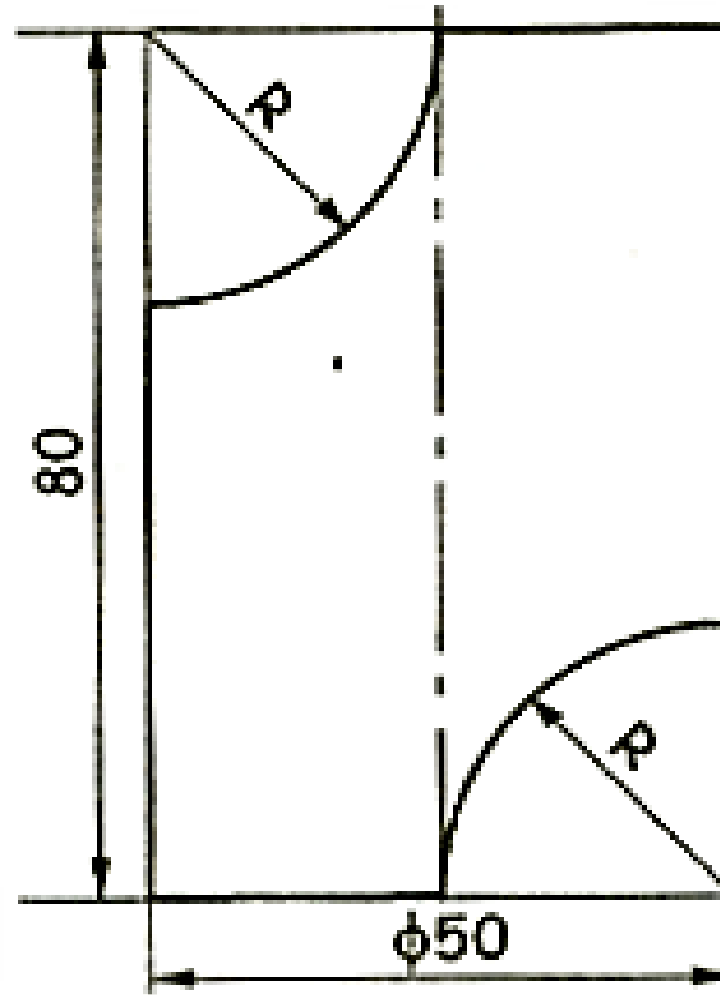
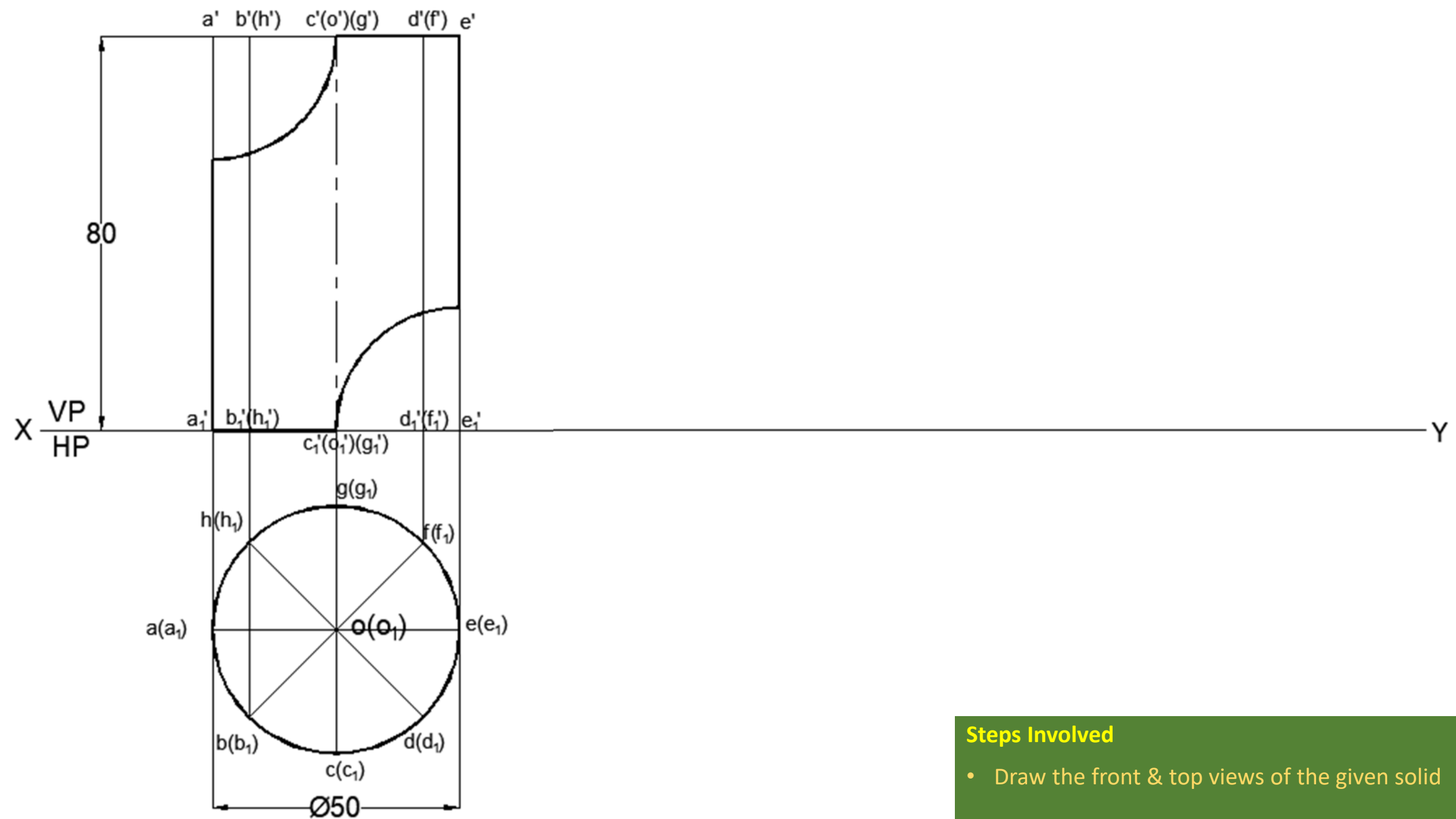
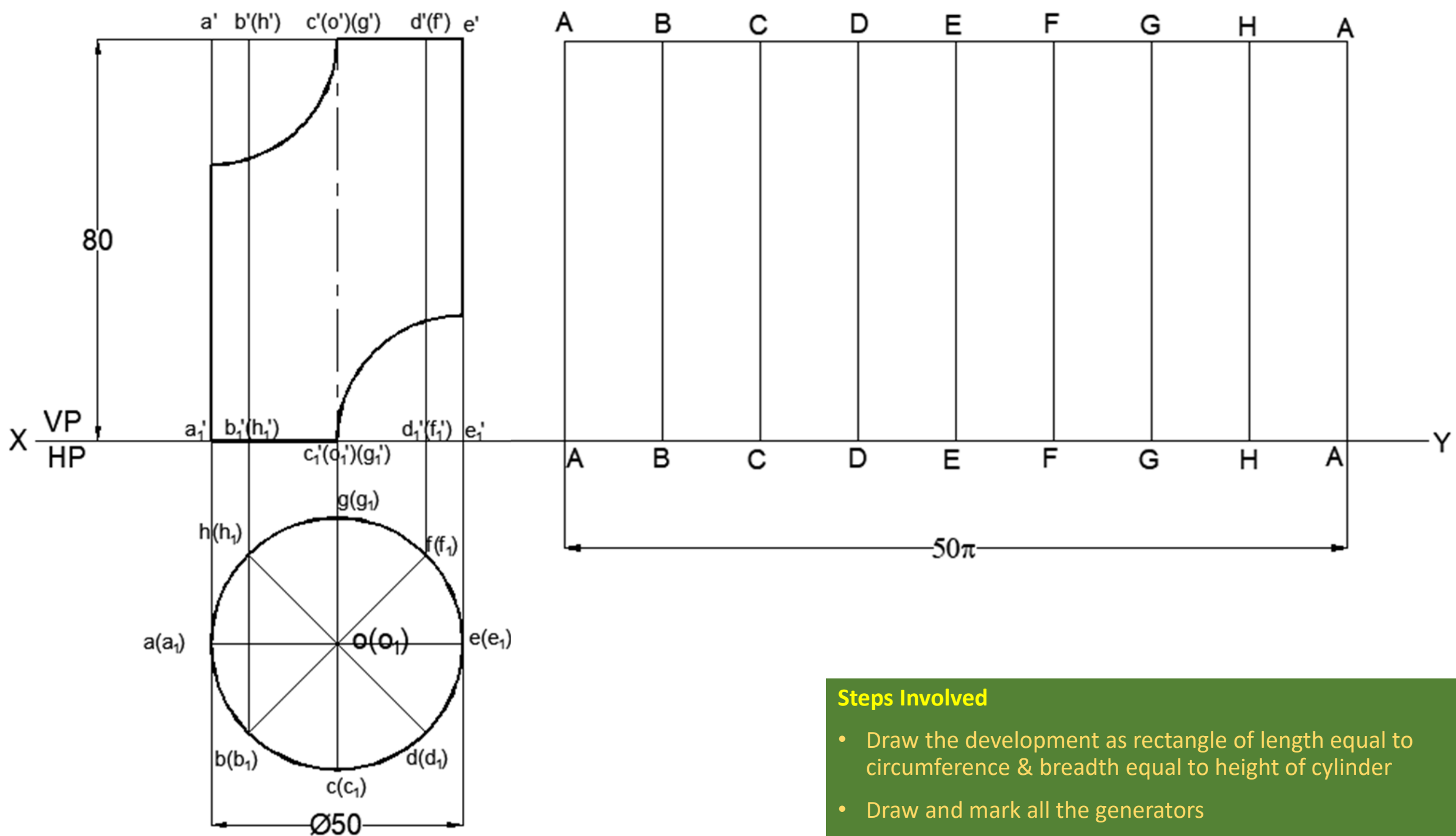


Fig. D-2:



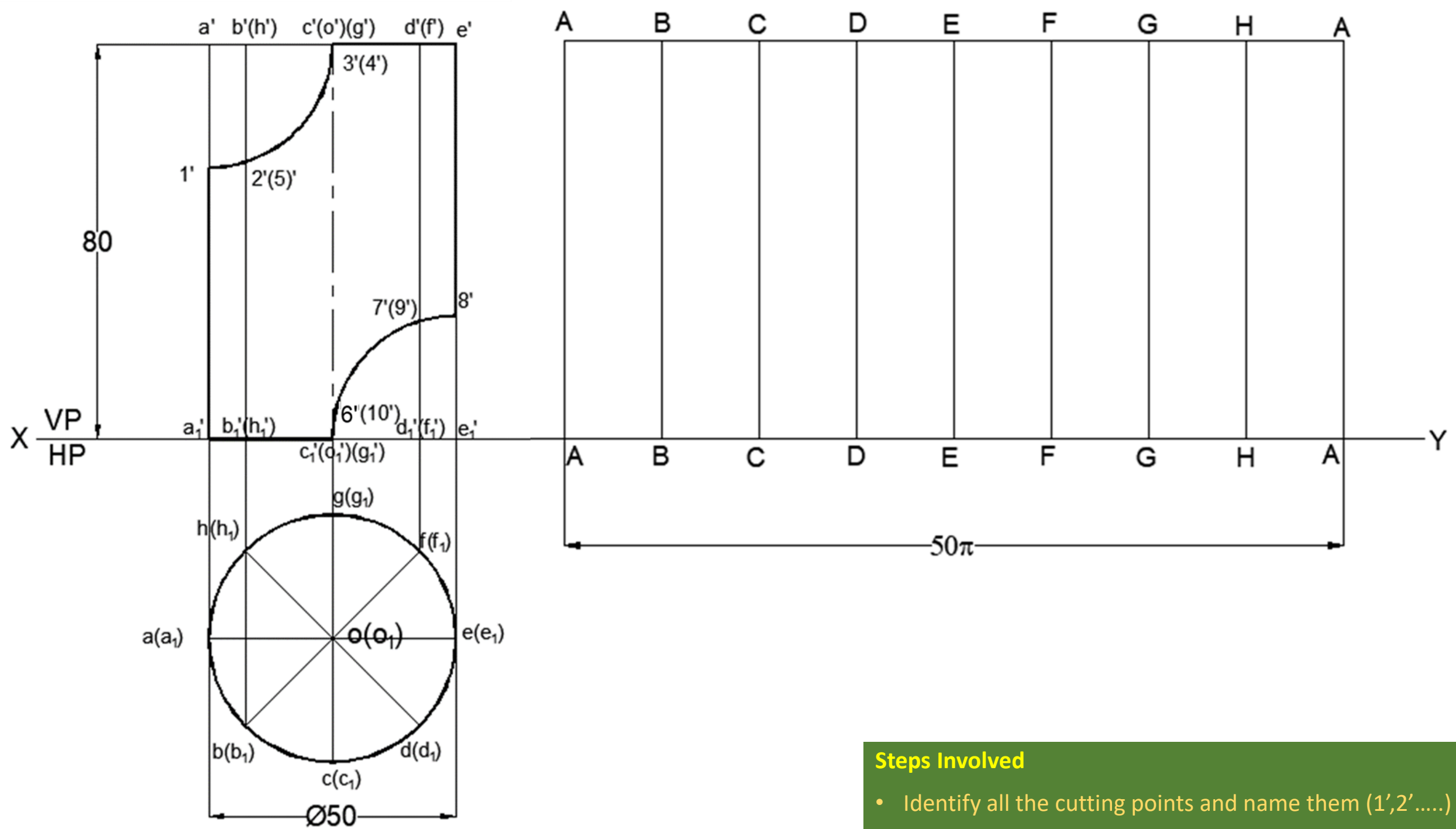
### Steps Involved

- Draw the front & top views of the given solid



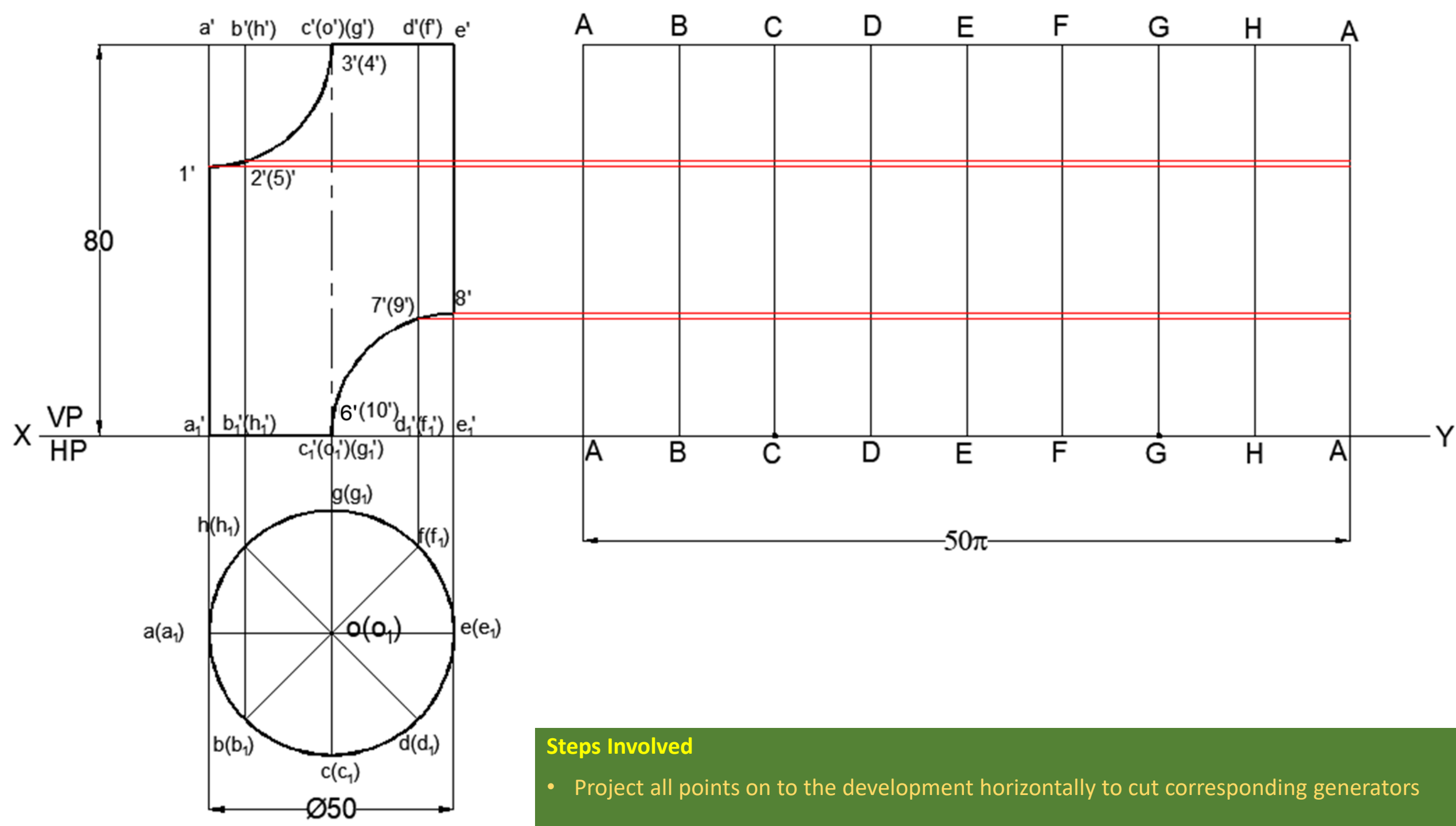
### Steps Involved

- Draw the development as rectangle of length equal to circumference & breadth equal to height of cylinder
- Draw and mark all the generators



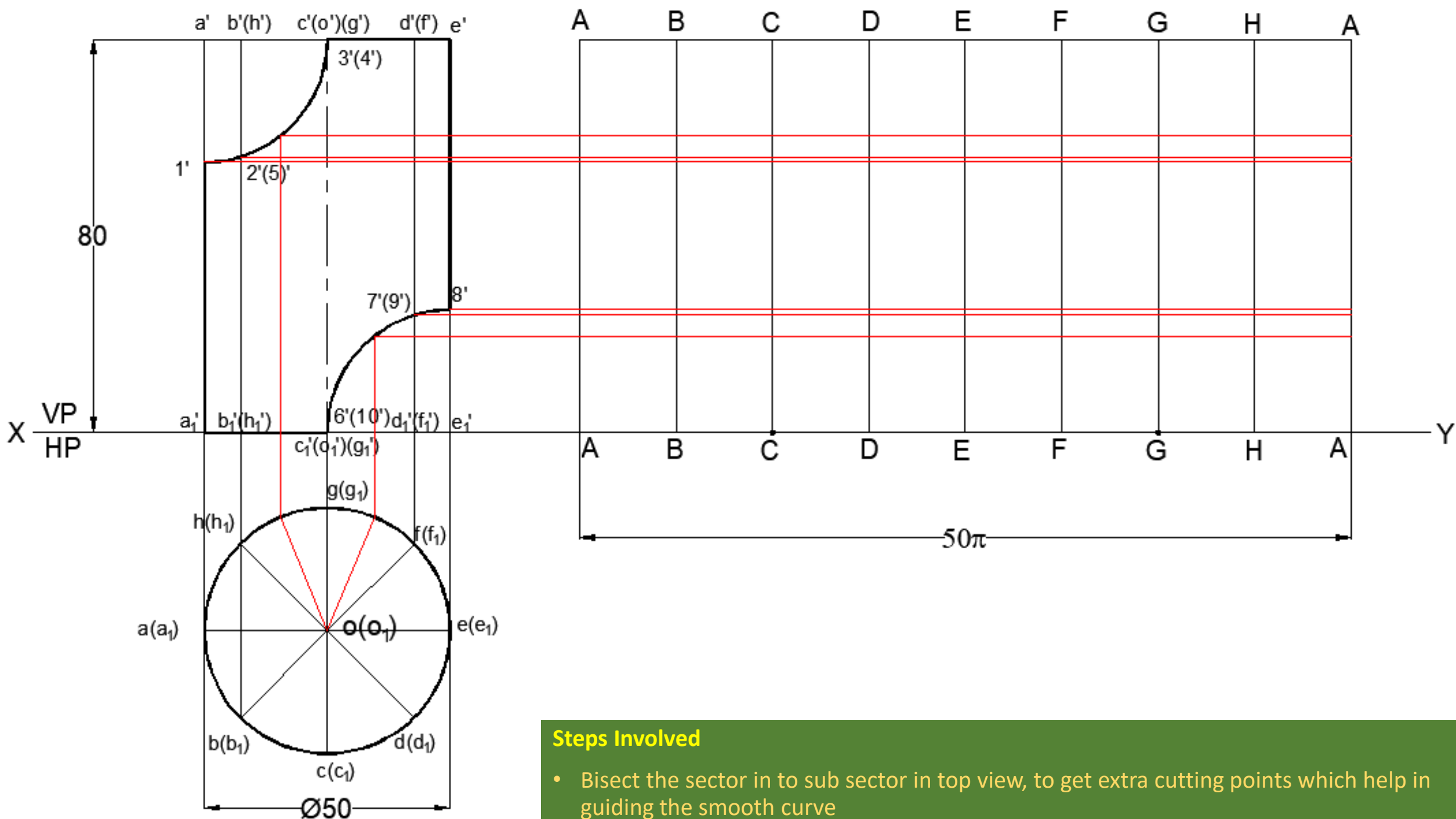
### Steps Involved

- Identify all the cutting points and name them ( $1', 2', \dots$ )



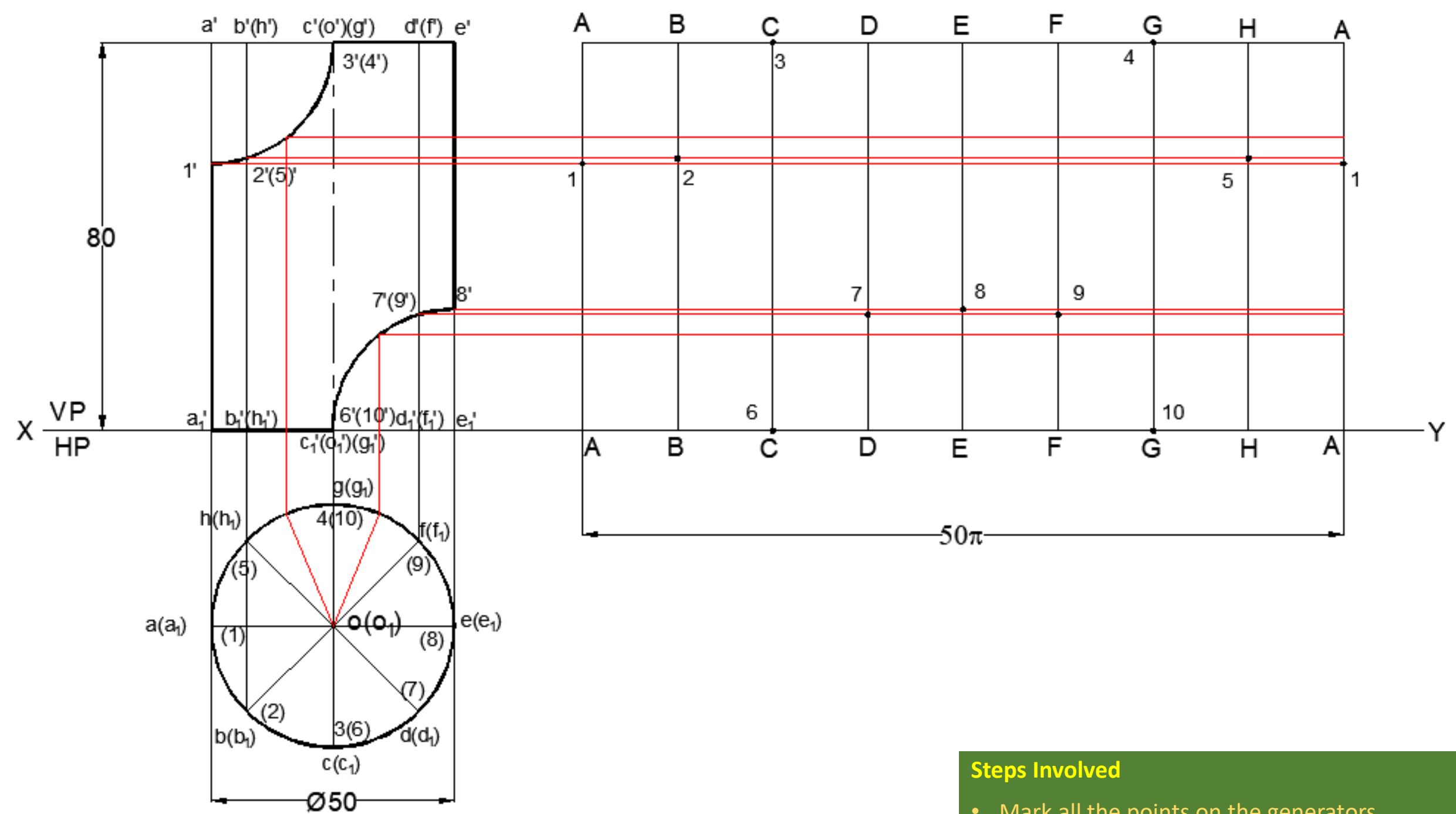
### Steps Involved

- Project all points on to the development horizontally to cut corresponding generators



### Steps Involved

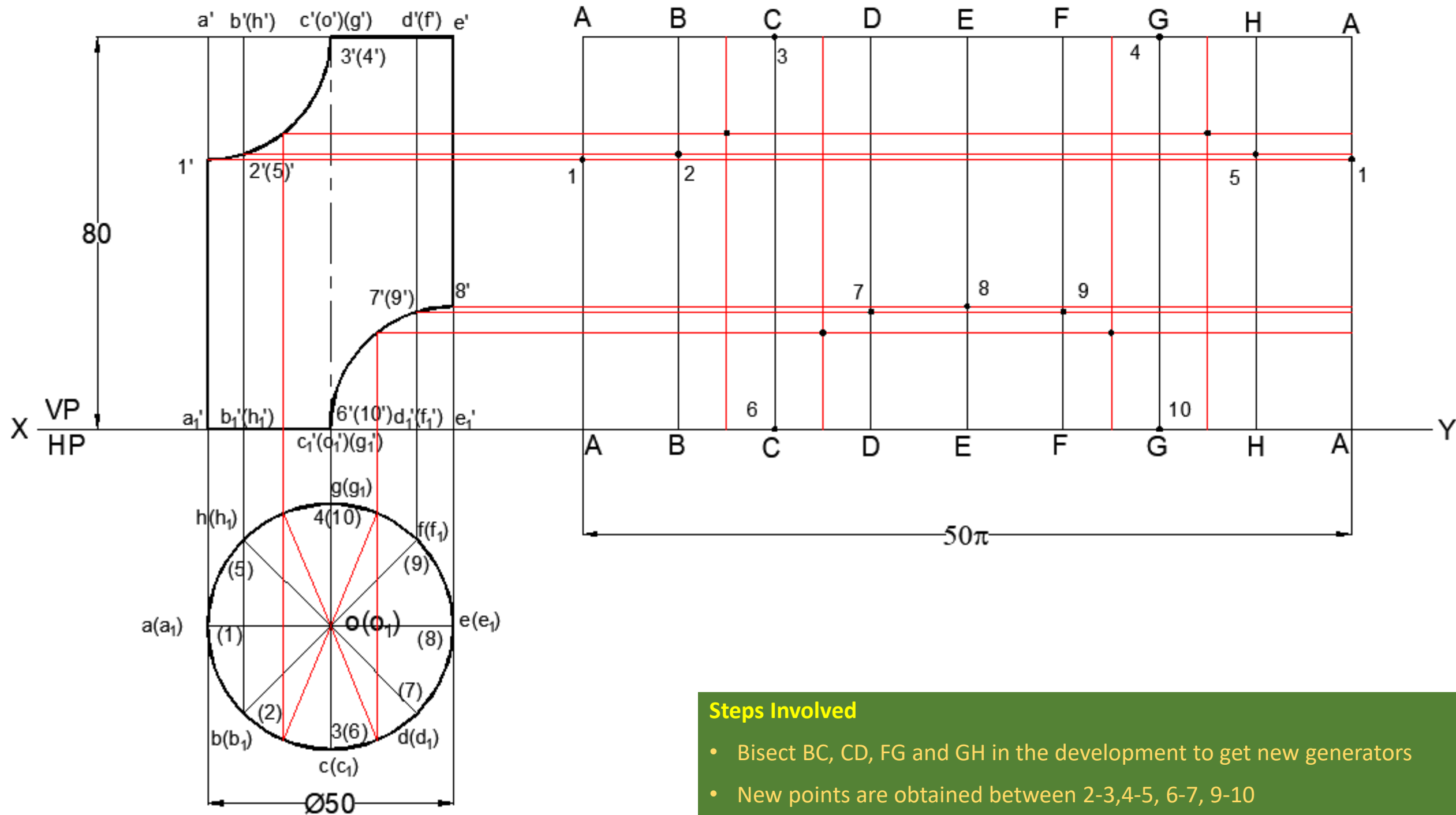
- Bisect the sector in to sub sector in top view, to get extra cutting points which help in guiding the smooth curve



### Steps Involved

- Mark all the points on the generators





### Steps Involved

- Bisect BC, CD, FG and GH in the development to get new generators
- New points are obtained between 2-3, 4-5, 6-7, 9-10

