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WORKSHEET NO: 17

Year 12 TD STRAND 4

Introduction

Surface development is a process of revealing the true shape of a flat surface which is in two dimensional shapes. The surface to be developed may be flattened or rolled out without tearing or folding in order to get an exact development. However, two dimensional shape has to be cut out in order to make a three dimensional object when folded and assembled together. In other words, the development of a solid is the shape of a plain sheet that by proper folding could be converted into the shape of the concerned solid.

Knowledge of development is very useful in **sheet metal work, construction of storage vessels, chemical vessels, boilers, chimneys, etc.** Such articles are manufactured from plates that are cut according to these developments and then properly bent into the desired shaped. The joints are then **welded, glued or riveted.**

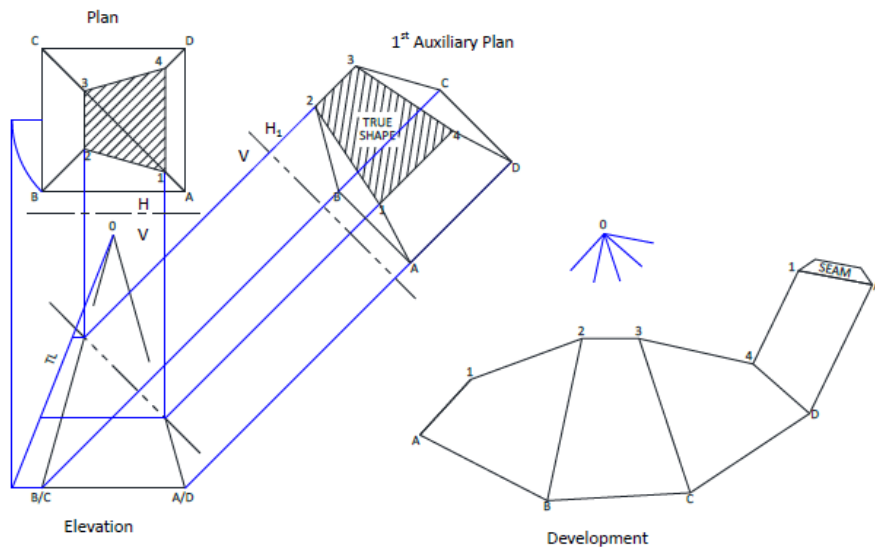
The diagram given below shows some common applications of solids that have been developed, folded and joined together.

2. RADIAL-LINE DEVELOPMENT

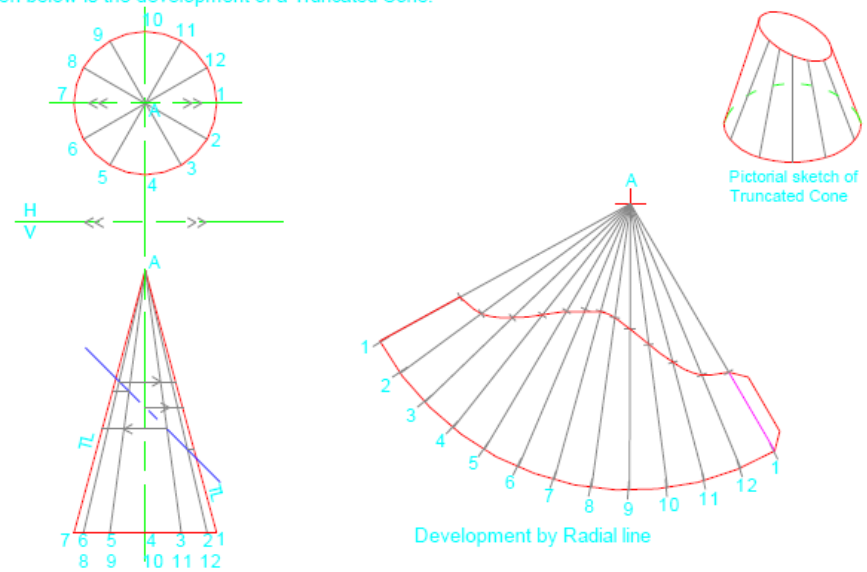
This method of surface development is used for Cones and Pyramids. The two common types of cones and pyramids are *right* and *oblique*. The centre line for a right cone/pyramid will meet the base at 90° whereas the oblique cone/pyramid will meet at an angle other than 90° . Finding the true length is very important for cones/pyramids for drawing the development.

TWO BASIC RULES FOR FINDING THE TRUE LENGTH ARE:

- If a line appears as a point in one view, then the same line will be the true length in the next view.
- If a line is parallel to the reference line in one view, then the same line will appear as the true length in the next view.



Given below is the development of a Truncated Cone.



Activity

Given: The plan and elevation of a truncated Cone.
Required: Complete the sectional plan and the true shape
Draw the development.

