3055 BA SANGAM COLLEGE

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WORKSHEET NO: 20

Year 12 TD

Introduction

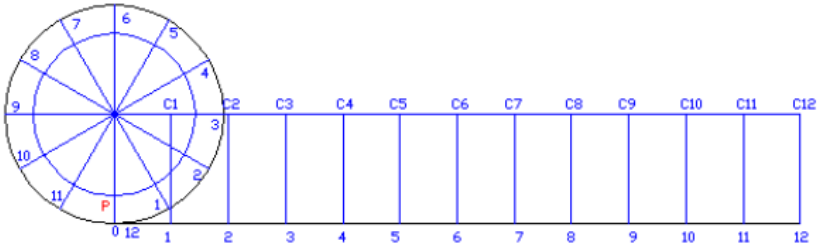
WHAT IS AN INFERIOR TROCHOID?

It is a locus of a point which lies inside the generating circle. The construction layout is similar to that of a cycloid; notice that the 'spokes' will lie in similar positions, but the radius is that of the generating circle.

CONSTRUCTION OF AN INFERIOR TROCHOID

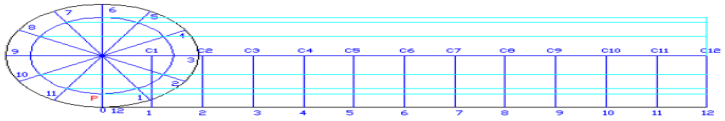
Below is a description of how to construct an **Inferior Trochoid** for a point **P** inside a circle as it rotates along a straight line without slipping.

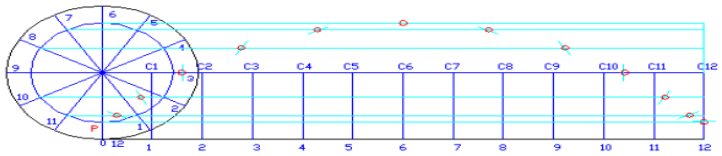
Follow the first 2 steps of a cycloid to begin the construction of an Inferior Trochoid.



Draw the height lines for the **Inferior Trochoid**, and this is where things are a little different from the construction of a Cycloid.

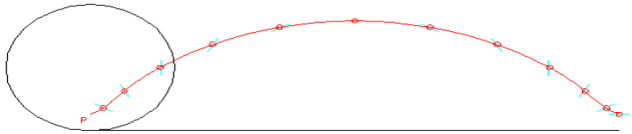
Draw a circle that runs through point P. We get our height lines from where the division lines of the circle cut this new circle.





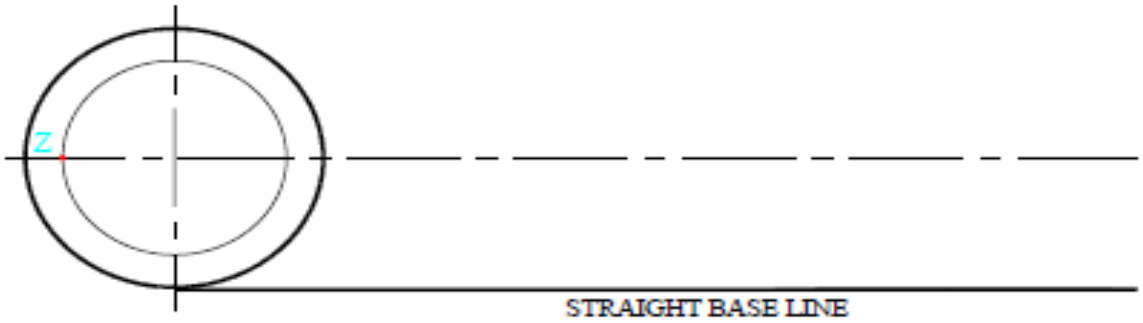
You can continue by setting your compass to the radius of the new circle, placing the point of the compass on C1 and cutting height line 1. Continue on as with the Cycloid.

Join the points to get the locus of an **Inferior Trochoid**.



Activity

Given: A car wheel with an air valve labelled as Z rolls on a horizontal highway without slipping.
Required: Plot the locus of point Z as it makes 3/4 revolution.



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