

## Intersection (of non-intersecting line segments)



You first have to select two line segments. The tool will always let you select two segments. If you select a third one, it deletes the first segment selection. Please bear in mind that you have appropriate snapping settings values. You can select segments either from lines or polygons.



You can now create an intersection point that will be drawn in a memory layer. It will create also a line that joins the two points furthest away with the intersection point.

## Arc Intersection



This tool lets you calculate an arc intersection from two distances to two points. You have to select two points. If you select a third one, the first selection will be canceled. Please bear in mind that you have appropriate snapping settings values and the "on the fly" crs transformation should not be enabled.



When you have selected two points you can calculate the arc intersection by entering the distance (in meters) to the two selected points. The intersection point(s) will be drawn in a memory layer.

## Orthogonal Line



This one is for creating a orthogonal line (and the intersection point) from a point to a line segment. You first have to select a vertex (which has to be in the current layer) and then the segment from a background layer. The selector will toggle between vertex and segment selections. Please bear in mind that you have appropriate snapping settings



When you have selected a vertex and a segment you can create the orthogonal line and the intersection point. These two objects will be drawn in a memory layer.

## Rectangular Points



This function lets draw points from orthogonal measurements to a base line. You first have to select the line segment.



If you selected the base line you can simply enter the abscissa (x) and the ordinate (y). The origin is always the left point of base line. But you can invert the origin by checking the checkbox.

## Orthogonal Traverse



With this function you can draw/calculate an orthogonal traverse between two points which you have to select first.



After selecting the two points you can calculate the orthogonal traverse by entering the distances you measured in one line, e.g. "3.5 -2.46 -12.33 4.5". This describes an orthogonal traverse with four distances. If you want to turn left you have to use negative values.

## Show Azimuth



With this function you can calculate the azimuth between two points which you have to select first.



After selecting the two points you can calculate the azimuth just by pushing the button.

## Rotate Feature



This function is for rotating features. You first have to select the feature you want to rotate and a vertex which will be the centre of rotation. The vertex does not have to be on the current layer.



After selecting the feature and the vertex you can enter the angle of rotation (in degrees).

## Parallel Line



With this function you can create parallel lines. First you have to select a single line segment.



After selecting the line segment you can either create a parallel line by entering a fixed length or selecting a vertex point.

## Circular Arc



This function creates a segmented circular arc. You first have to select three points which will define the circular arc; the starting point, one point on the circular arc and the end point.



After selecting the three points you can create the segmented circular arc. You can choose the method of the segmentation (pitch or angle) and the tolerance in *CadTool - Settings*.

## Modify Circular Arc



You can modify the circular arc you created with the function above. This tool is only available if there is a linestring layer in editing mode. You can either move one of the arc points - which will change the diameter of the circular arc - or move the starting/end point. The latter method will define the circular arc with the moving point, the mean arc point and the other starting/end point.

## Circular Arc Digitizing



This function is only available if there is a polygon or a linestring layer in editing mode otherwise the button is greyed out. You have to hold the ctrl key pressed when adding the three arc points (starting point, arc points, end point). After adding the third one it will draw the circular arc. There will no attribute window pop up.

## Orthogonal Digitizing



This function is only available if there is a polygon or a linestring layer in editing mode otherwise the button is greyed out. You have to press the ctrl key to draw lines or polygons with square angles. To close a polygon you have 2 alternatives:

1. You can release the ctrl key before closing the polygon with a right mouse click. You have to draw by eye when you want a square angle.
2. When you have the ctrl key pressed when closing the polygon, the first point of the polygon will be moved till the last angle is square.

There will no attribute window pop up.

## Cad Console



The cad console supports some commands:

1. `ortho on/off`: Toggles ortho mode on and off so you don't need to push the ctrl-button all the time.
2. `ortho abscissa ordinate`: Adds an orthogonal vertex point with `abscissa = abscissa` and `ordinate = ordinate`.
3. `polar angle distance`: Adds a polar vertex point with `angle = angle` and `distance = distance`. The angle is always relative to the last segment.
4. `length length/off`: Sets the digitizer to a restricted digitizing length for the following segments.
5. `close line`: Close the digitized line.
6. `close poly`: Close the digitized polygon.
7. `exit`: Exits the cad console.

These commands only work if you use the orthogonal digitizer tool. For adding vertex points (No. 2, 3, 5 and 6) you need at least one digitized segment.