An Alternative Approach For Solving The Resection Problem[1]

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Abstract

The importance of the old problem "the Re-section Problem" can be clearly seen in the irrigation, transportation, and engineering structures. In this problem, new points are inserted in an existing geodic network related to a certain site.

In this study and due to the accelerated progress of using modern technological instruments in surveying, we have developed the old re-section problem so that we avoid the difficulty of posting on the hazardous circle known in this problem.

The new idea here is to calculate the intersection of two circles. Thus, we find the equations of two circles each passes through a certain known point and both pass through the unknown point. A system of two equations of second degree resulted. This includes the coordinates of the unknown point (x, y).

We have also developed a simple algorithm that can be used to solve this re-section problem. This algorithm can be included in the available geodic software as well as in the advanced surveying instruments (Total Station).

Keywords: Intersection, Resection, Hazardous Circle, Mean Square Error, Precession.