

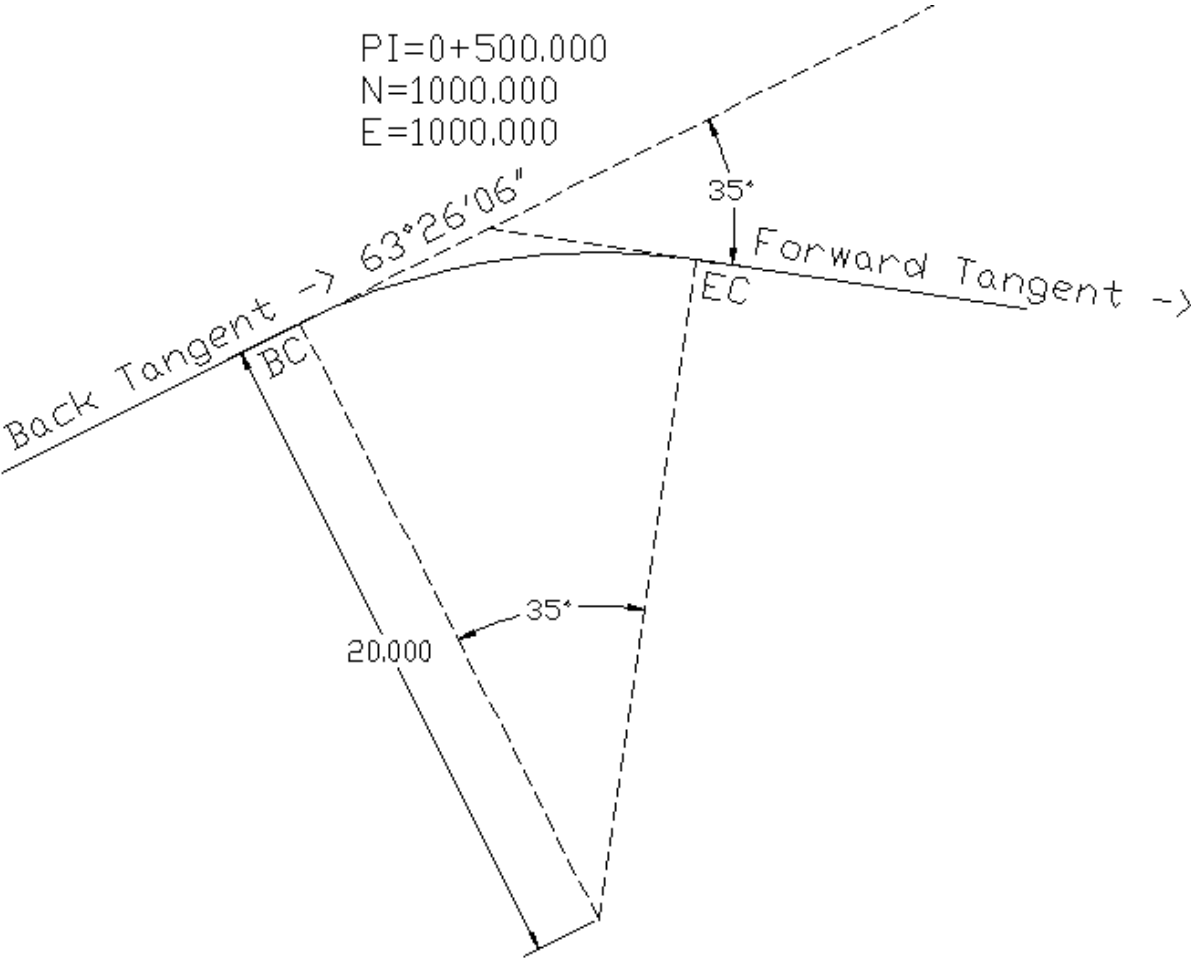
Horizontal Curve Solver

Using COGO+ Pro by [Simple Geospatial Solutions](#)

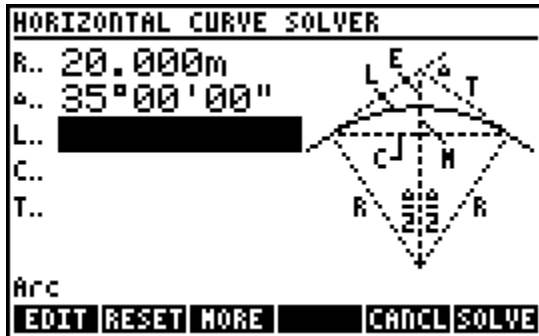
The Horizontal Curve Solver program in COGO+ Pro is found in the TOOLS menu. The solver works by providing two known elements and solving for the rest. At least one of the known elements must be the radius or the deflection angle with the standard solver. When the curve is solved it is also possible to calculate coordinates on the curve at any station and offset, and solve the calculated coordinates as points in the job database.

Example 1

A curve is given with a known radius of 20m and known deflection angle of 35°. The coordinates and station of the PI are known, and the back tangent azimuth is given as 63°26'06". Solve the coordinates and stations of the BC and EC.



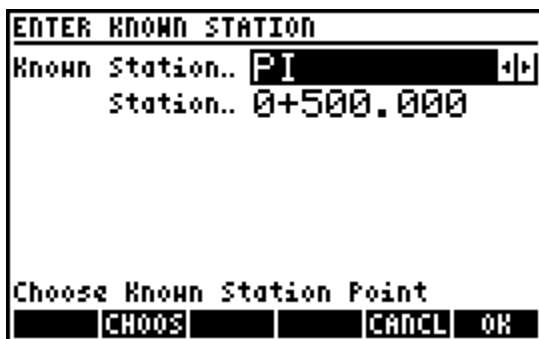
Step 1: Start the Horizontal Curve Solver and enter the known values.



Step 2: The curve solution is presented, press the \downarrow and \uparrow cursor keys to switch between the two pages of solutions. Note the softmenu labels.



Step 3: Press $F2$ [COORD] to begin solving coordinates for points on the curve. The first input form requires a known station, select the PI as the known station and enter 500 as the value.



Step 4: In the following input form enter the rest of the known curve information.

```

ENTER KNOWN INFORMATION
Known Tangent.. Back
Azimuth.. 63°26'06"
Curve Direc..... Right
Known Coords... PI
North..... 1000.000m
East..... 1000.000m
Choose Known Tangent
CHOOS  CANCL  OK
  
```

Step 5: The first solution displayed is for the BC, again note the softmenu.

```

SOLVE COORDINATES
Station..... 0+493.694
Offset..... 0.000m
-----
Northing... 997.1799m
Easting..... 994.3598m

Enter Station to Solve
EDIT STORE Sta?  CANCL
  
```

Step 6: Press [F3] [Sta?] to select a certain key station to solve, for example the EC point.

```

SOLVE COORDINATES
Station..... 0+493.694
Offs: Beginning of Curve
Point of Intersection
End of Curve
Mid-point of Curve
Radius Point
Northing... 997.1799m
Easting..... 994.3598m

Enter Station to Solve
CANCL  OK
  
```

```

SOLVE COORDINATES
Station..... 0+505.911
Offset..... 0.000m
-----
Northing... 999.0750m
Easting..... 1006.2378m

Enter Station to Solve
EDIT STORE EC  CANCL
  
```

Optionally you can press [F2] [STORE] to store the point in the job.

```

STORE POINT
n: 999.0750m
E: 1006.2378m
z: 0.0000m

Point Number:
61
LOW NEXT  CANCL  OK
  
```

Also you can enter any station and offset to calculate the coordinates.

```
SOLVE COORDINATES
Station..... 0+500.000
Offset..... 5.000m
-----
Northing... 994.1266m
Easting..... 1001.0870m

Enter Station to Solve
EDIT STORE Sta? CANCL
```

When the station value entered is out of range, no solution is provided.

```
SOLVE COORDINATES
Station..... 0+520.000
Offset..... 5.000m
-----
Northing... -----
Easting..... -----

Enter Offset From Centerline
EDIT STORE Sta? CANCL
```