

About SGS Prime COGO

<https://sgss.ca/hpprime.html>

Product Summary

SGS Prime COGO is a Land Surveying app made for the HP Prime Graphing calculator; featuring all the common calculation capabilities expected from a Survey app, as well as many more advanced capabilities not commonly found on a calculator app. The HP Prime features a full-color touch-enabled display allowing for a rich user experience never before seen on a calculator, while the exceptional speed of the calculator makes extremely quick work of even the most complex calculations. **SGS Prime COGO** includes multi-lingual support and is available in three versions: Lite, Standard or Professional.

Features Overview

Lite Version

The Lite version includes all the common calculations, including:

- COGO, intersections, inverse calculations, area calculations
- Coordinate adjustments: Rotate/Mirror/Shift/Average/Scale
- Triangle Solver, Horizontal Curve Solver, Vertical Curve Solver
- Data management tools, Plot Points graphically

Standard Version

Includes everything in the Lite version, and:

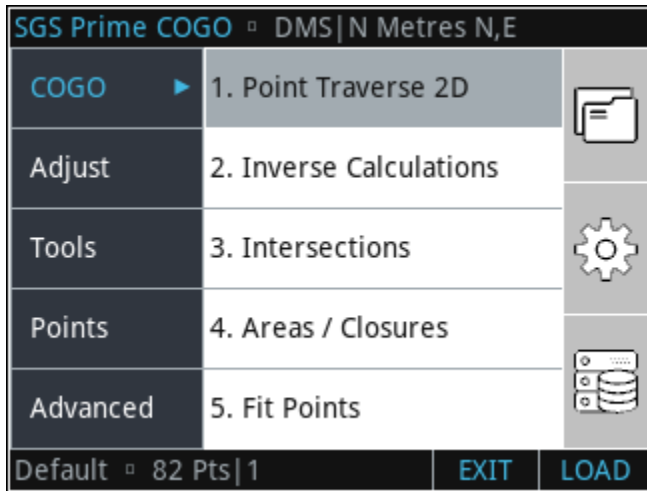
- Area subdivisions, Lot Closure calculations and reporting, best-fit points to line or curve
- Least squares similarity coordinate transformations
- Spiral curve solver
- Import and export ASCII point data, export DXF points

Professional Version

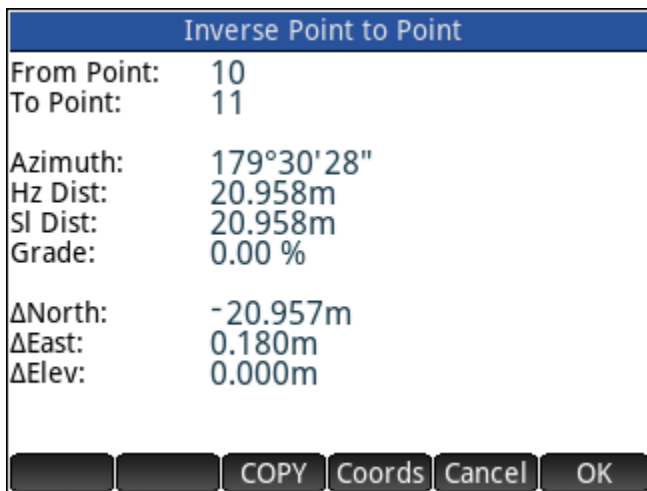
Includes everything in the Standard version, and:

- Complete 3D Road Alignments editor with advanced calculations capabilities, automated coordinate calculations, LandXML export and more
- Leveling utility to manage and edit Level observation data, perform calculations and create reports
- More features coming soon!

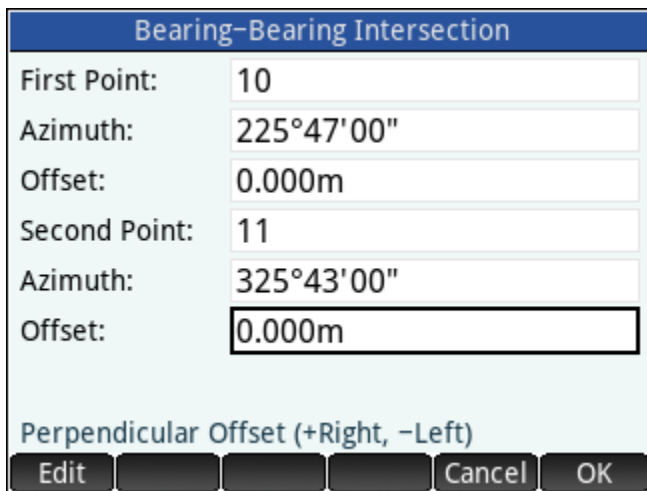
Screen Captures



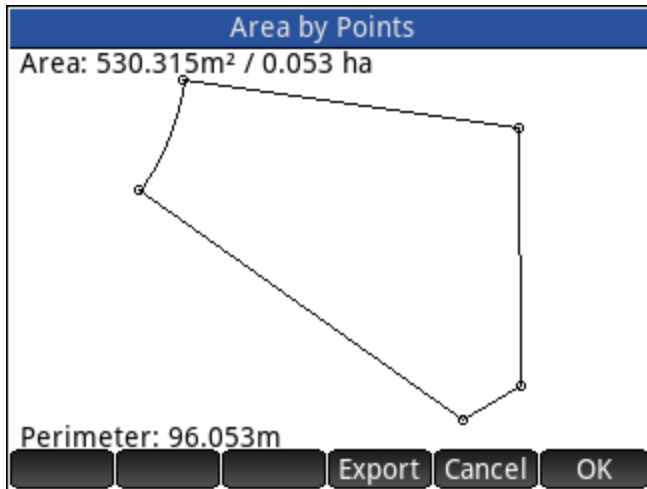
Main Menu



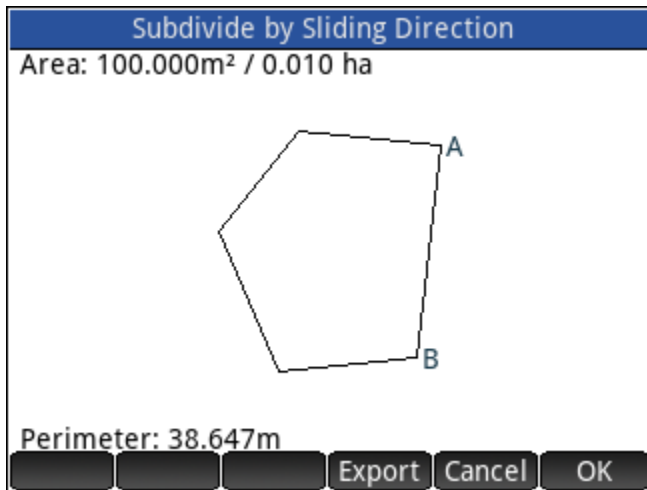
Inverse Points Results



Intersections Input



Area Calculation Result



Area Subdivision Result

Closure SAMPLE

Segment	Parameter 1	Parameter 2
1 Line	D 93.389m	A 131°12'15"
2 Line	D 79.811m	A 25°54'55"
3 Curve L	R 9.144m	L 16.076m
4 Curve R	R 187.054m	L 62.376m
5 Line	D 65.193m	A 221°12'15"

Add Delete Edit Insert Cancel Calc

Lot Closures

Closure SAMPLE	
Segments:	5
Precision:	1:439452
Length:	316.845m
Area:	6164.825m ² 0.616 ha
Misclose Information	
Azimuth:	29°46'13"
Distance:	0.001m
ΔNorthing:	0.001m
ΔEasting:	0.000m

• Sol Plot Export Cancel OK

Closure Calculation Result

Closure Options	
1. Add Closure Report to Log File	
2. Clear Log File	
3. Export HTML Report	
4. Export DXF File	
5. Store Point Coordinates	

Cancel OK

Closure Options

Best Fit Line	
Best Direction:	285°12'28"
Y Intercept:	6216.581m
Correlation:	-0.99999869634
Std Deviation:	0.020m

• Sol Offs Direc Cancel Adjust

Best Fit Line

Best Fit Line		
Point	Offset from Line	Use
70	0.010m	Yes
71	0.012m	Yes
72	-0.040m	Yes
73	0.002m	Yes
74	0.015m	Yes
75	0.001m	Yes

Sol • Offs Direc Use - Cancel Adjust

Best Fit Line

Helmert Transformation (No Scale)			
Local	Fixed	Match	Hz Dist
201	1201	3D	0.001m
202	1202	3D	0.001m
203	1203	3D	0.002m

Add Delete Edit Param Cancel Cont

Coordinate Transformations

Helmert Transformation (No Scale)	
Fixed Scale:	1.00000000000
Rotation:	0°00'02"
Translate [N]:	202.725m
Std Dev [N]:	0.001m
Translate [E]:	-136.281m
Std Dev [E]:	0.001m
Translate [Z]:	-0.005m
Std Dev [Z]:	0.001m

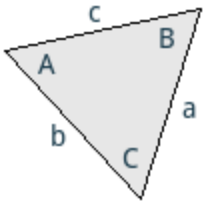
• Sol ΔXYZ ΔPol Back Cont

Coordinate Transformations

Plane Triangle Solution

Angle A: 53°07'48"
 Side c: 3.000m
 Angle B: 90°00'00"
 Side a: 4.000m
 Angle C: 36°52'12"
 Side b: 5.000m

Area: 6.000m²
 Perimeter: 12.000m




Triangle Solver

Circular Curve Solver

R: 500.000m

 Δ : 34°15'20"
 L:
 C:
 T:

Arc Length



Horizontal Curve Solver

Vertical Curve Solution

BVC Station: 0+000.000
 BVC Elev: 239.550m
 VPI Station: 0+050.000
 VPI Elev: 235.500m
 EVC Station: 0+100.000
 EVC Elev: 238.750m
 Low Station: 0+055.479
 Low Elevation: 237.303m

Curve Length: 100.000m
 Entry Grade: -8.10 %
 Exit Grade: 6.50 %

Vertical Curve Solution

Vertical Curve Solution		
Station	Elevation	Instant
0+000.000 BVC	239.550m	-8.10 %
0+020.000	238.222m	-5.18 %
0+040.000	237.478m	-2.26 %
0+060.000	237.318m	0.66 %
0+080.000	237.742m	3.58 %
0+100.000 EVC	238.750m	6.50 %

Sol • Int Elev? Sta? OK

Vertical Curve Intervals

RPN Calculator		
6:	m	ft
5:	DMS	D.d°
4: 25.500m	Gon	Rad
3: 83.661'	Stack	
2: 14°36'52"	Units	
1: 14.0000r	Tools	
	EXIT	

DUP SWAP DROP OVER ROT UNROT

RPN Calculator

Configure Settings
1. Angle and Distance Units
2. Coordinates, Stations and Grades
3. Input and Output Scale Factors
4. Program Options
5. DXF File Layers
6. Terminology Localization

Cancel OK

User Settings

Store and Edit Points

Point ID: 15

Northing: 3004.036m

Easting: 1972.712m

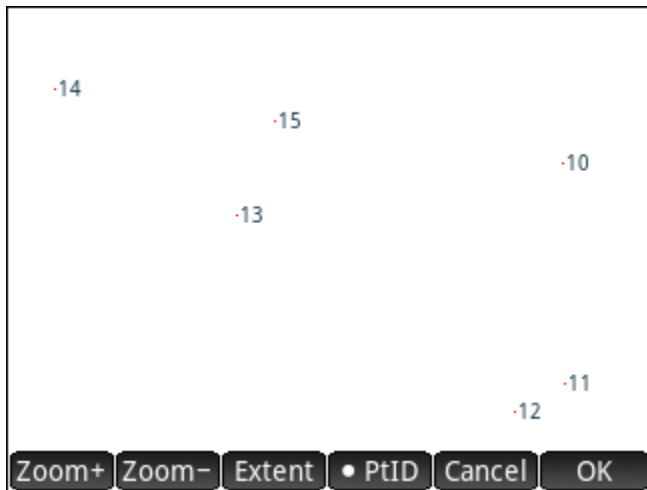
Elevation: 0.000m

Description: AREA

Point Identifier

Low Next COPY PASTE Cancel OK

Store and Edit Points



Plot Points

Import and Export Points

1. Import ASCII Points
2. Export ASCII Points
3. Export DXF Points

Cancel OK

Import/Export Points

ASCII Export Options

Format: P·N·E·Z·D

Delimiter: Comma

Decimals: 5

File Name: Default .CSV

Point(s):

All Points:

Export All Points?

Cancel Export

Export Points

Edit Horizontal Alignment

Segment	Station	Length	
1 Start	0+000.000	--	Horiz
2 Straight	0+000.000	156.365m	Vert
3 Curve	0+156.365	126.361m	
4 Straight	0+382.726	26.410m	Xsec
5 Curve	0+409.136	100.663m	Eqs
6 Straight	0+509.799	4.421m	
7 SCS	0+514.220	200.000m	Xtemp
8 End	0+714.220	--	

Edit Delete Info Calc Cancel Add

Alignment Editor

ALIGN1

1. Solve Station and Offset
2. Coordinates by Interval
3. Plot Horizontal Alignment
4. Plot Vertical Alignment
5. Export LandXML

Cancel OK

Alignment Options

LEVEL1 Observations			
Reading	Station	Rod	Hz Dist
1 BS	23-011	2.023m	50.000m
2 FS	TP1	1.597m	50.000m
3 BS	TP1	1.446m	50.000m
4 FS	TP2	1.357m	50.000m
5 BS	TP2	1.584m	50.000m
6 FS	84R511	1.518m	50.000m
7 BS	84R511	1.837m	50.000m
8 FS	TP3	0.820m	50.000m
9 BS	TP3	0.795m	50.000m

Leveling Observations

Observation Data
1. Field Book Review
2. Store Station Elevation
3. Export Field Book File
4. Export STAR*NET File

Level Data Options