Introduction to Geomatics Engineering SE 312

CLASS PROBLEM

Tacheometry – (Stadia System)

From point **Q** two points: **P and A** have been observed using a tacheometer (with multiplication constant, **K** =**100** and additive constant, **C**=**0**). Data are given in table below. Given: **reduced level of station Q = 620.00m**; **Height of instrument at Q= 1.60m**

Compute:

1- Horizontal distances from **Q** to staff points **P and A**

2- Reduced levels of **P and A**

3- Distance **AP**

4- Coordinates of points **P and A** if coordinates of station **Q** are:

(500.00m; 200.00m; 600.00m).

Staff stat.	Azimuth	Vertical angle α	Stadia readings (m) L M U	**Stadia intercept s (m)**	**Horizontal Distance from Q (m) 100 s cos² α**	**V (m) 100 s cos α sin α**
P	**30° 00'**	**06° 00'**	**1.00; 1.60; 2.20**	**1.2**		
A	**120° 00'**	**00° 00'**	**1.30; 1.90; 2.50**			

SOLUTION

Tacheometer Formulea

SD = K s cos α + C
HD = K s cos² α + C cos α
VD = K s cos α sin α + C sin α
For K = 100 & C = 0;

SD = 100 s cos α; **HD = 100 s cos² α;** **VD = 100 s cos α sin α**