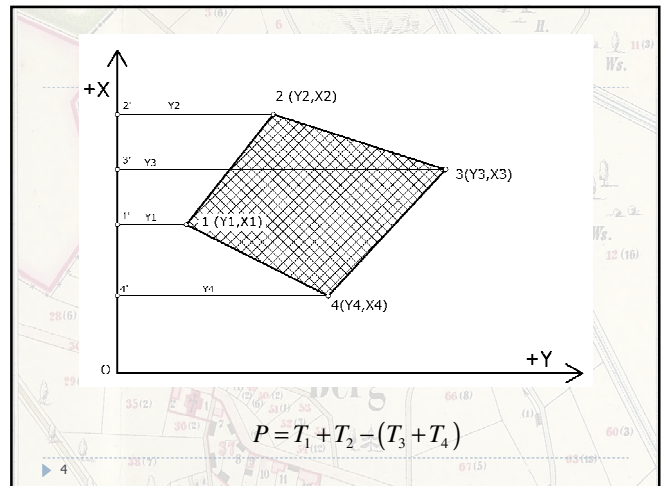
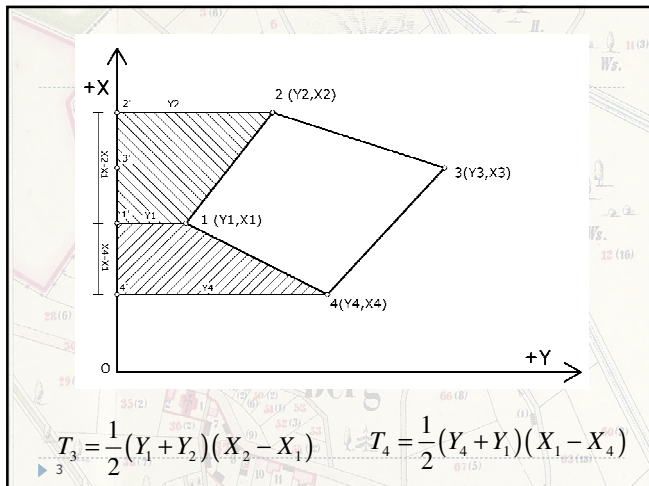
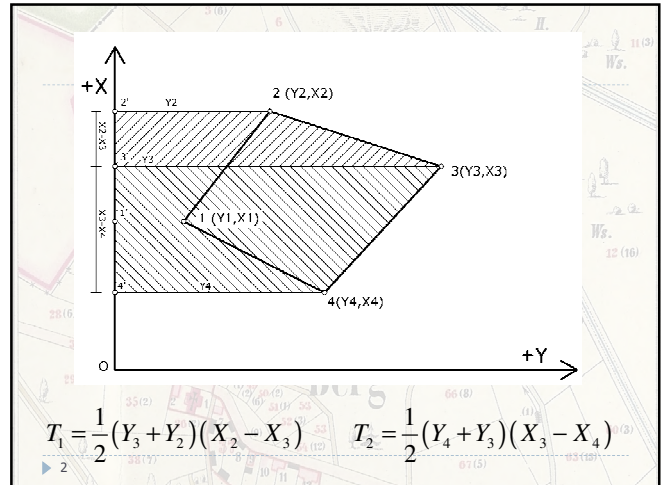


Računanje površine iz koordinata tačaka

Nakon završenog snimanja terena, često postoji potreba za računanje površina određenih parcela.

Jedna od mogućnosti je računanje površine iz koordinata tačaka.

Potrebno je poznavati koordinate svih prelomnih tačaka medne linije parcele za koju se određuje površina.



Uvrštavanjem dobijamo:

$$2P = (Y_3 + Y_2)(X_2 - X_3) + (Y_4 + Y_3)(X_3 - X_4) - [(Y_1 + Y_2)(X_2 - X_1) + (Y_4 + Y_1)(X_1 - X_4)]$$

Odnosno:

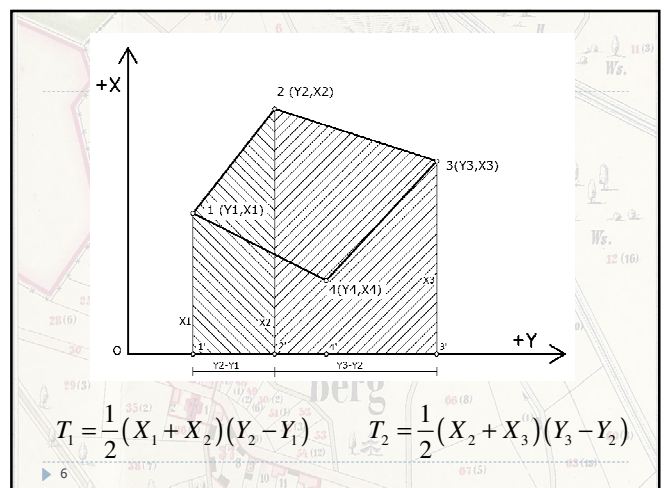
$$2P = Y_1(X_4 - X_2) + Y_2(X_1 - X_3) + Y_3(X_2 - X_4) + Y_4(X_3 - X_1)$$

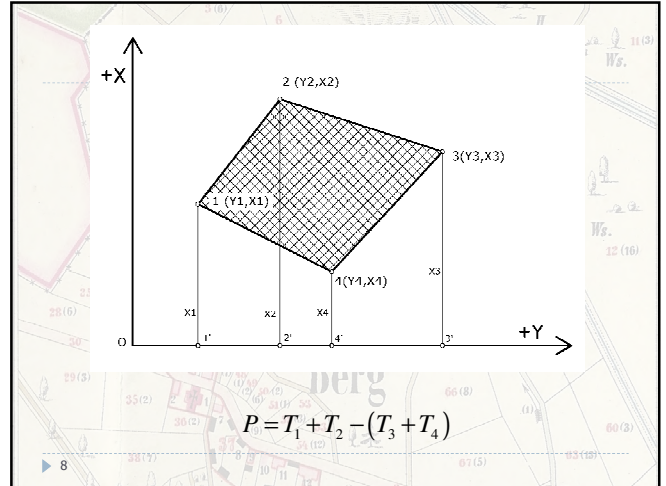
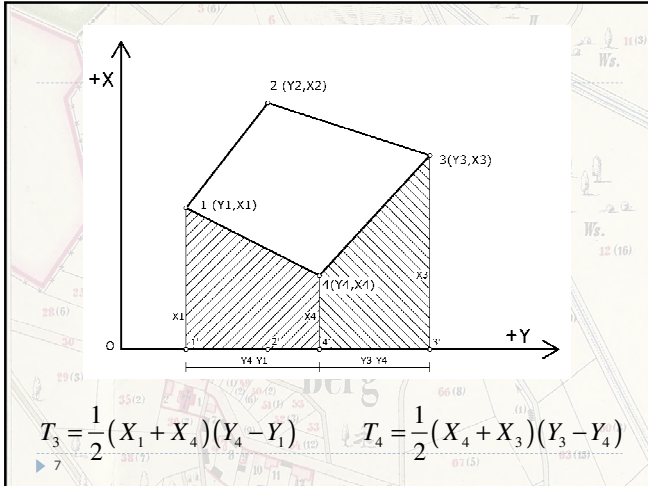
U opštem slučaju:

$$2P = \sum_{i=1}^n Y_i (X_{i-1} - X_{i+1})$$

Pa se površina dobija:

$$P = \frac{1}{2} \sum_{i=1}^n Y_i (X_{i-1} - X_{i+1})$$





Uvrštavanjem dobijamo:

$$2P = (X_1 + X_2)(Y_2 - Y_1) + (X_2 + X_3)(Y_3 - Y_2) - [(X_1 + X_4)(Y_4 - Y_1) + (X_4 + X_3)(Y_3 - Y_4)]$$

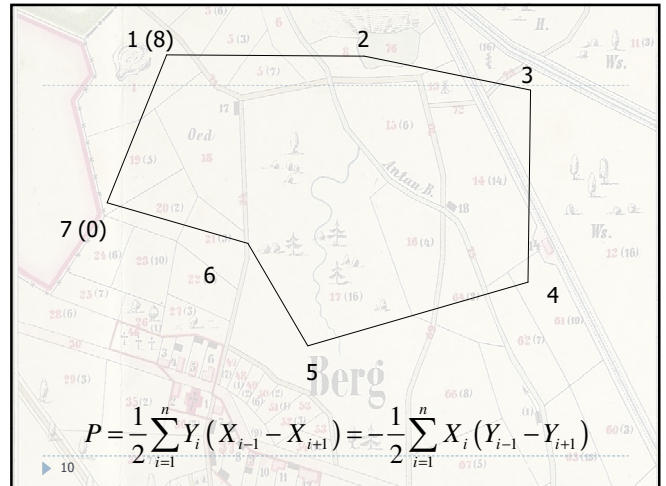
Odnosno:

$$2P = X_1(Y_2 - Y_4) + X_2(Y_3 - Y_1) + X_3(Y_4 - Y_2) + X_4(Y_1 - Y_3)$$

U opštem slučaju:

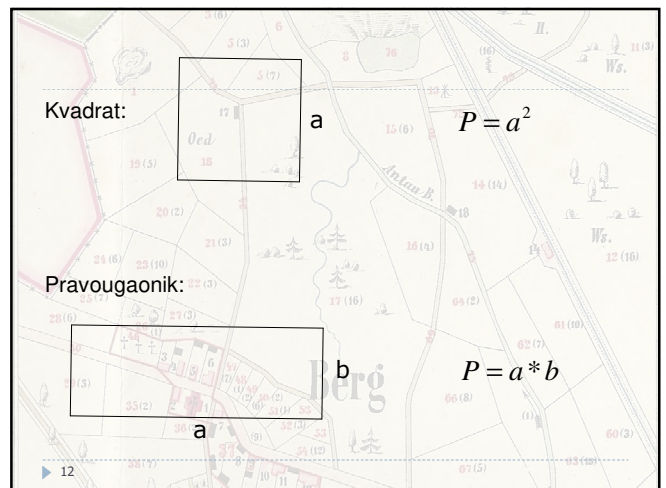
$$2P = \sum_{i=1}^n X_i (Y_{i+1} - Y_{i-1})$$

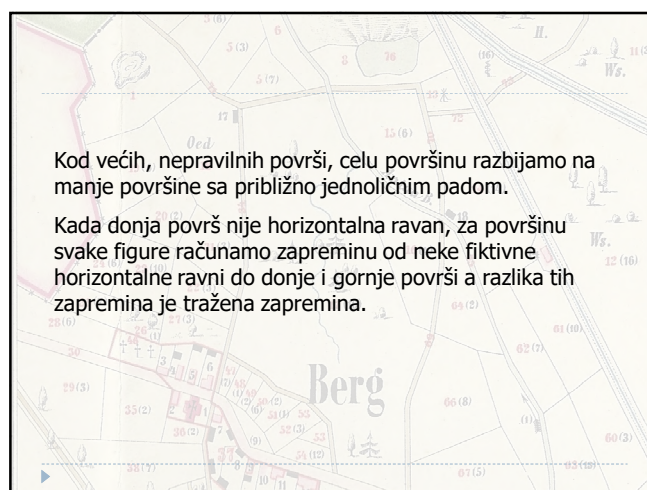
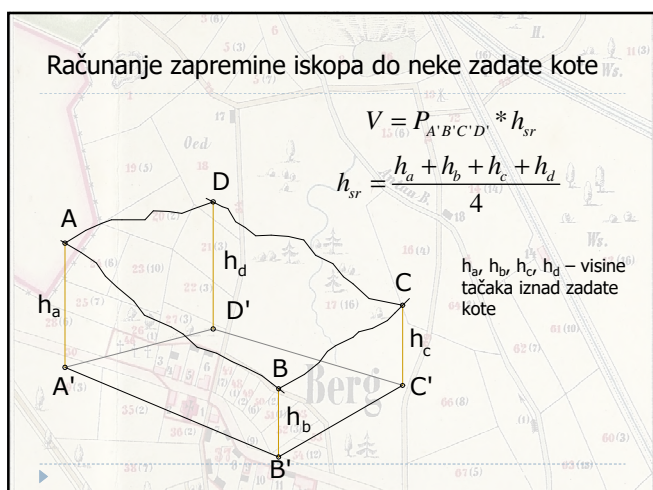
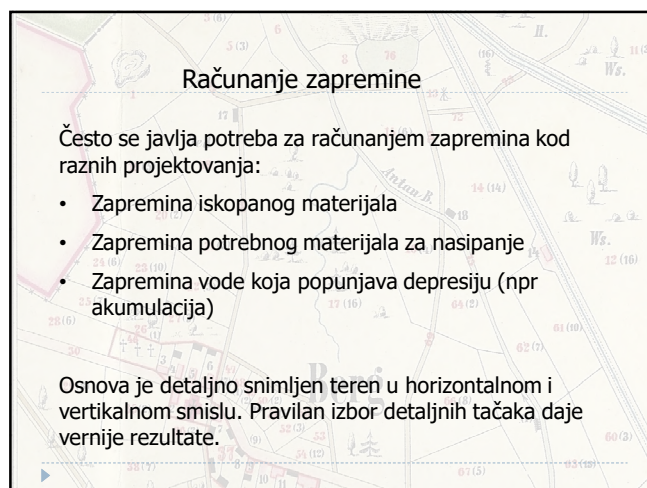
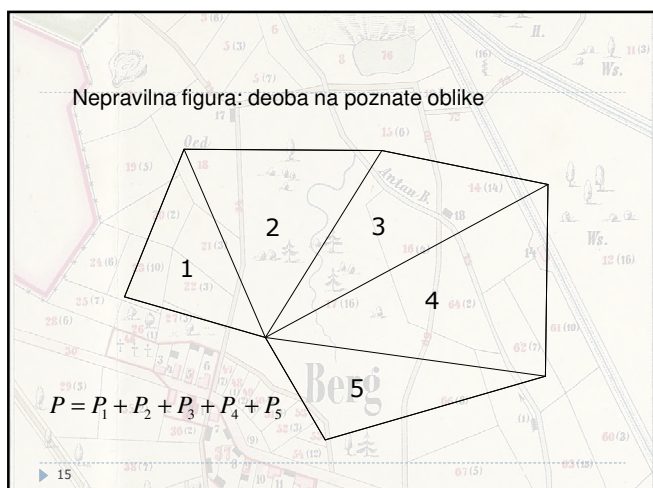
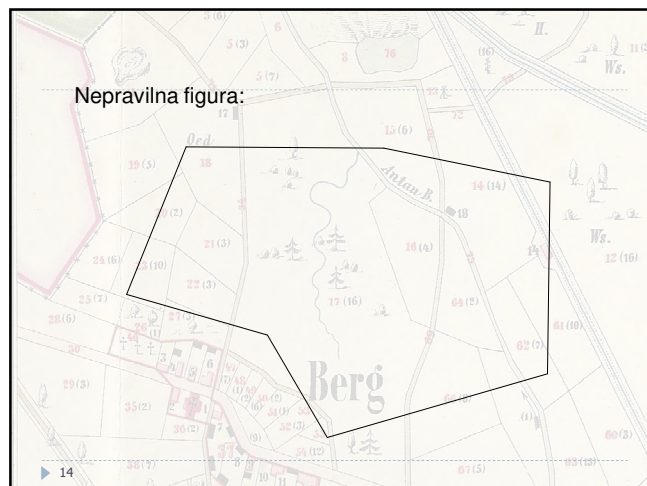
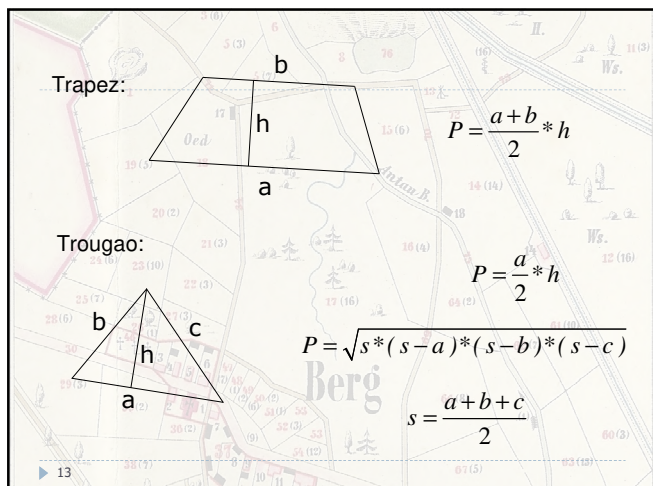
Pa se površina dobija:

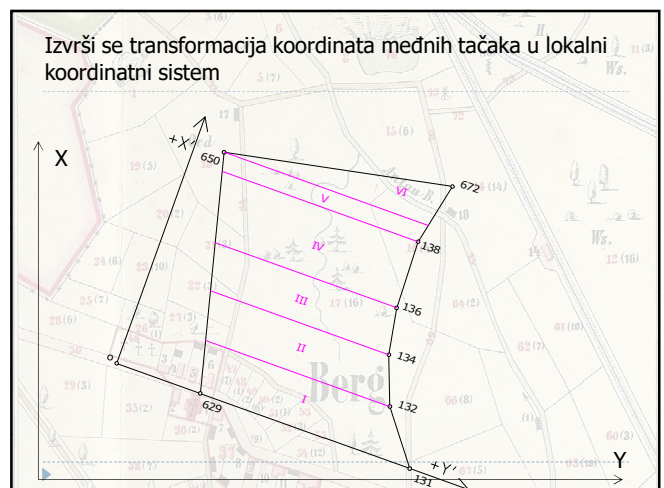
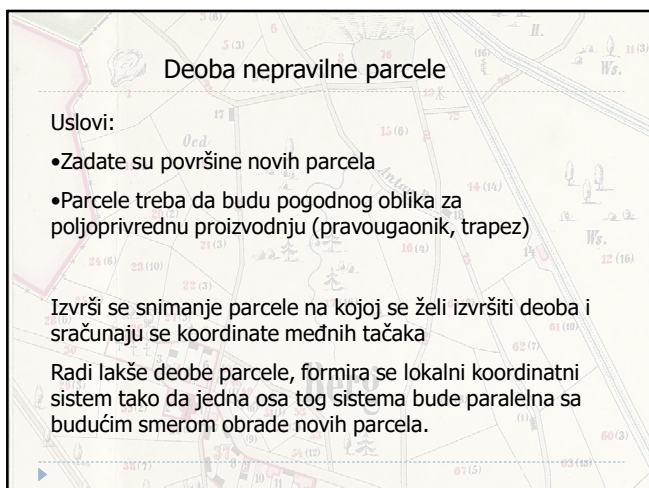
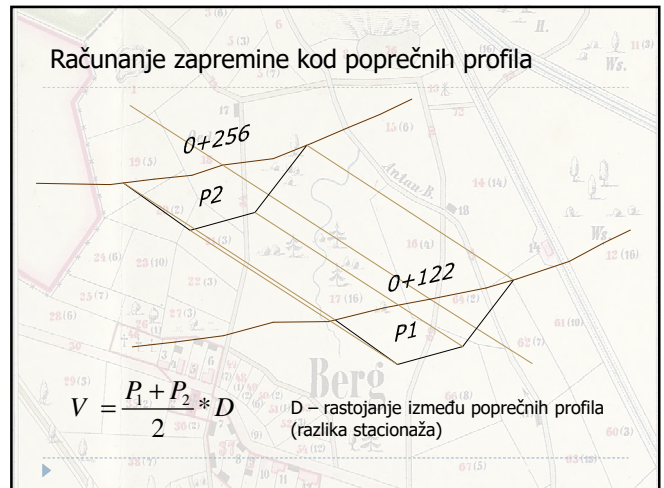
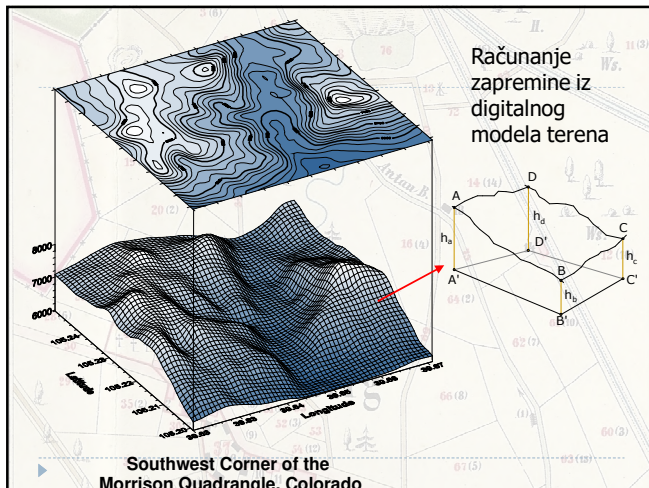
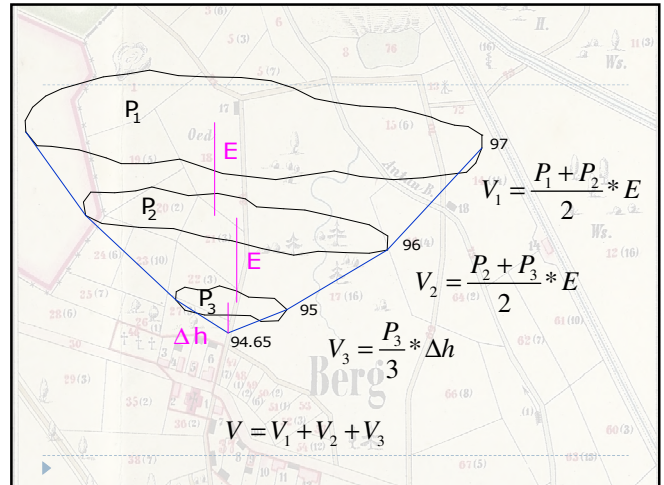
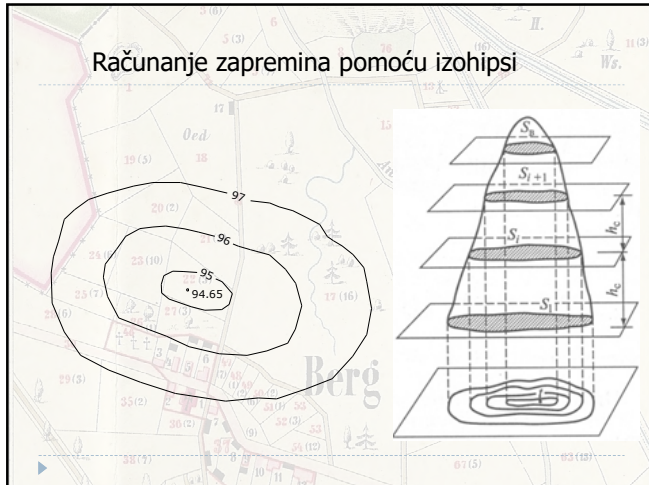
$$P = \frac{1}{2} \sum_{i=1}^n X_i (Y_{i+1} - Y_{i-1})$$


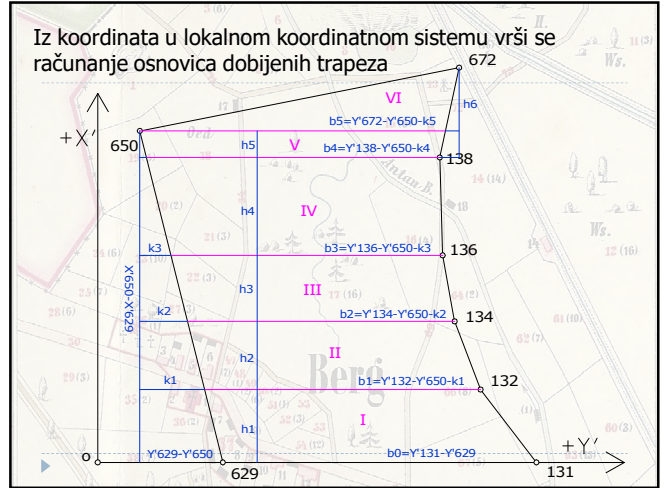
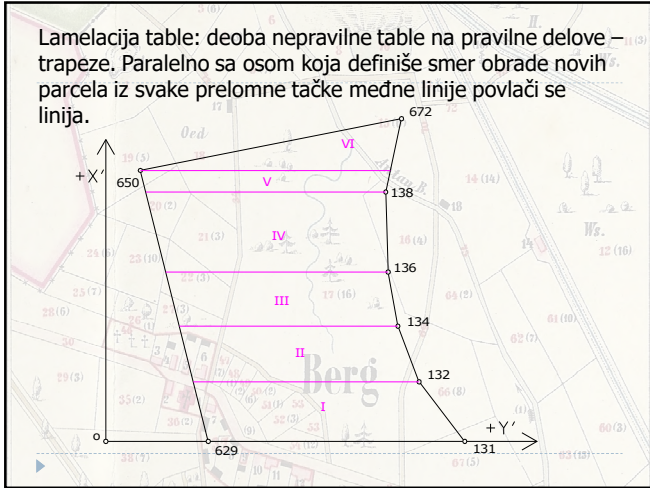
Računanje površine parcele iz mera izmerenih na terenu

Površina parcele se može dobiti i merenjem dimenzija parcele oblika neke pravilne figure na terenu. Ovaj način se može primeniti kada nemamo koordinate međnih tačaka, odnosno nemamo pribor za snimanje potrebnih tačaka.









Visine lamela:

$$h_1 = X'_{132} - X'_{131}$$

$$h_2 = X'_{134} - X'_{132}$$

$$h_3 = X'_{136} - X'_{134}$$

.....

Površine lamela

$$P_I = \frac{b_0 + b_1}{2} h_1$$

$$P_{II} = \frac{b_1 + b_2}{2} h_2$$

.....

Osnovice:

$$b_0 = Y'_{131} - Y'_{629}$$

$$b_1 = Y'_{132} - Y'_{650} - k_1$$

$$k_1 = \frac{X'_{650} - X'_{132}}{X'_{650} - X'_{629}} (Y'_{629} - Y'_{650})$$

$$b_2 = Y'_{134} - Y'_{650} - k_2$$

$$k_2 = \frac{X'_{650} - X'_{134}}{X'_{650} - X'_{629}} (Y'_{629} - Y'_{650})$$

.....

Kontrola:

Zbir površina lamela treba da se slaže sa površinom parcele dobijenom iz koordinata mednih tačaka.

