Surface functions

Typy
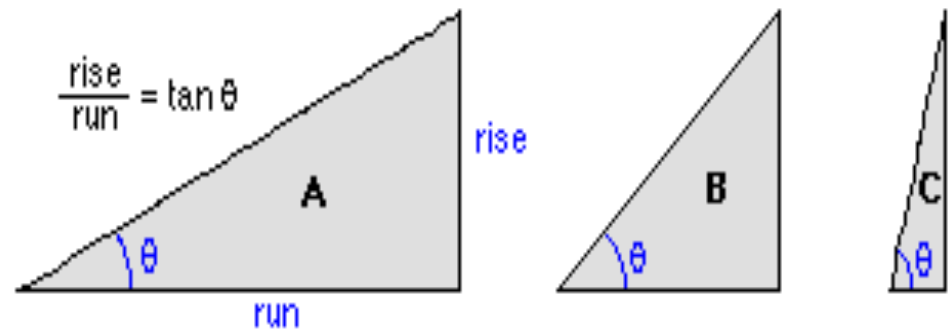
- Charakter
  - Slope
  - Aspect
  - Curvature
  - Hilshade
- Vymezení
  - Contour
- Srovnání
  - Cutfill
- Viditelnost
  - Visibility
  - Viewshed
  - Observedpoints

Slope

- Maximální z změna

Raster based GIS grid model

- Using the elevations of the surrounding eight points in a 3 x 3 neighborhood.
- To calculate the slope and aspect for cell "F" needs elevations at point A, B, C, G, K, J, I, E

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P

A	B	C	D
E	**F**	G	H
I	J	K	L
M	N	O	P

1. Calculate east-west gradient:

$$\Delta X = ((Z_C + 2*Z_G + Z_K) - Z_A + 2*Z_E + Z_I))/8*\text{cell size}$$

2. Calculate north-south gradient:

$$\Delta Y = ((Z_A + 2*Z_B + Z_C) - Z_I + 2*Z_J + Z_K))/8*\text{cell size}$$

Slope & Aspect

$$\tan(\text{Slope}(F)) = \text{sqrt}((\Delta x)^2 + (\Delta Y)^2)$$

$$\tan(\text{Aspect}(F)) = \Delta x \, / \, \Delta Y$$

Aspect

A(80)	B(74)	C(63)	D(89)
E(69)	**F(67)**	G(56)	H(78)
I(60)	J(52)	K(48)	L(60)
M(59)	N(49)	O(47)	P(40)

Aspects indicate the steepest downslope direction
Aspects are measured clockwise