

AutoCAD – coordinates

1. Coordinate systems

- *World Coordinate System (WCS)*– coordinate system with fixed origin and orientation
- *User Coordinate System (UCS)*– ‘modifiable’ coordinate system; it can be created by rotation and/or translation of WCS (*Tools* → *New UCS*→...*further options*)

When opening a new file WCS and UCS overlap as default. After several changes of UCS one can however set WCS to be current UCS once again.

2. Coordinates

- *Absolute coordinates* – given in current UCS by typing x- and y-coordinates (if z- coordinate is neglected, it is set to be 0); syntax: eg. 100,100
- *Relative coordinates* – they refer to the previously given coordinates; it means that previous point is temporarily treated as the origin of current UCS (its orientation remains the same); syntax: eg. @100,200
- *Cartesian coordinates* – given in Cartesian coordinate system; syntax: eg. 100,150 (absolute coordinates) or @200,400 (relative coordinates)
- *Polar coordinates* – require providing the radius r and angle α (between the radius and x-axis in counter-clockwise direction); syntax: eg. 100<45 (r is equal to 100 units and α is equal to 45 degrees – absolute coordinates) or @200<50 (relative coordinates)

Note: absolute Cartesian coordinates are usually set for the first point as default. Coordinates of the next points can be given in different way however. Check it using *Settings* (click right mouse button the *Dynamic Input* icon).