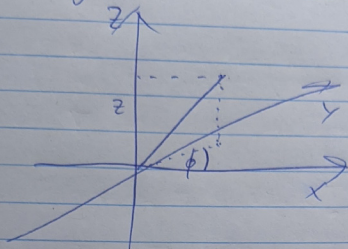


E.g.: Cylindrical cds.



$$\begin{aligned}
 x &= r \cos \phi \\
 y &= r \sin \phi \\
 z &= z
 \end{aligned}$$

Def: When the lines of ^{a running} constant coordinates is curved, we say the cds is curvilinear.

If they are straight, we say the cds is cartesian.

If these lines intersect orthogonally, we say that the cds is orthogonal.

All of the above are orthogonal.

(x, y, z) is cartesian

polar, cylinder and spherid cds are curvilinear

Next lecture: How do ∇ and ∇^2 look like in these cds?