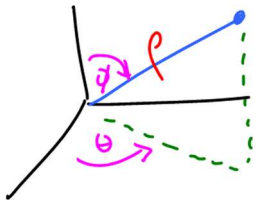
Formulas and information of possible interest

a) spherical coordinate info

$$x = \rho\sin(\vartheta)\cos(\theta) \quad y = \rho\sin(\vartheta)\sin(\theta) \quad z = \rho\cos(\vartheta)$$

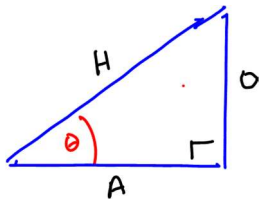
$$dV = \rho^2 \sin(\phi) d\rho d\phi d\theta$$



b) cylindrical **dV = r dz dr dθ**

c) $\sin^2(\beta) + \cos^2(\beta) = 1$ (Pythagorean Theorem)

d) SOH CAH TOA



e) Cross Product

$$\vec{A} \times \vec{B} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \end{vmatrix}$$

= < a2 b3 – a3 b2 , a3 b1 - a1 b3, a1 b2 - a2 b1 >