

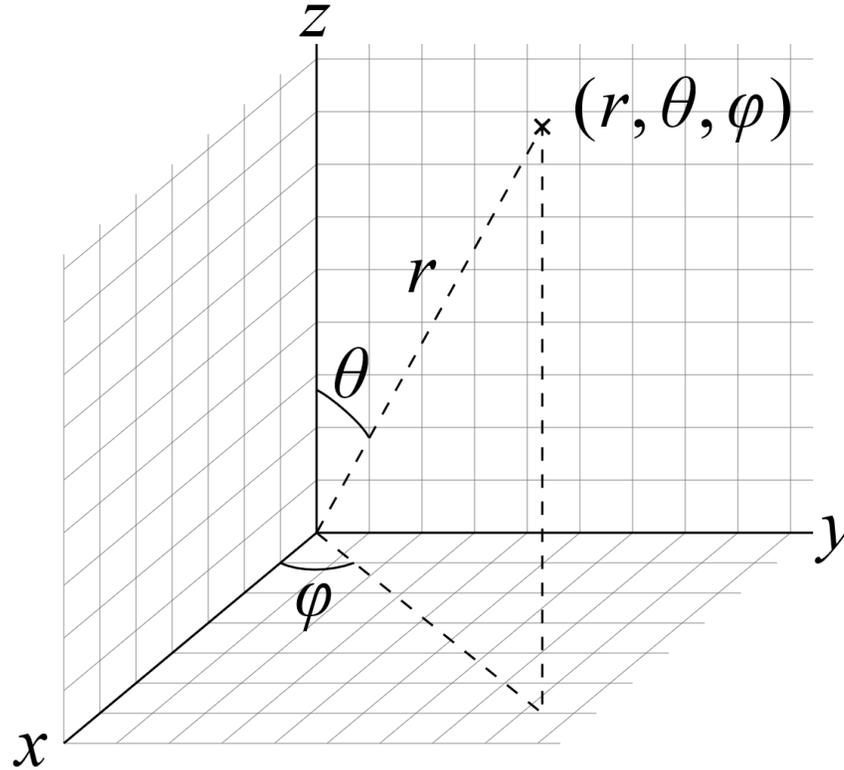
3-Dimensional Position From Trinary 3-D Integration Of Div, Grad, & Curl According To The Free World Alliance By Dr. AIIA Viacad

$$\vec{i} = x, \vec{j} = y, \vec{k} = z \text{ Directional Unit Vecors}$$

$$\overline{\text{Force}} = F_i \vec{i} + F_j \vec{j} + F_k \vec{k} = \langle F_i, F_j, F_k \rangle = \text{mass} * \overline{\text{accelertion}} = m * \vec{a} = m\vec{a}$$

$$\text{Gradient} = \nabla = \frac{\partial}{\partial x} \vec{i} + \frac{\partial}{\partial y} \vec{j} + \frac{\partial}{\partial z} \vec{k} = \left(\frac{\partial}{\partial x}, \frac{\partial}{\partial y}, \frac{\partial}{\partial z} \right) = \text{Rate of Change In 3D} \leftrightarrow \iiint \nabla d\vec{a} = \iint \nabla d\vec{v} = \int \nabla d\overline{\text{position}} = (x, y, z)$$

$$\text{Div} = \nabla \cdot \overline{\text{F}} = \frac{\partial F_i}{\partial x} + \frac{\partial F_j}{\partial y} + \frac{\partial F_k}{\partial z} = \text{Rate Of Change of Force Applied Which Changes } \vec{a} \text{ From Above}$$



$$\text{Curl} = \nabla \times \overline{\text{F}} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ \frac{\partial}{\partial x} & \frac{\partial}{\partial y} & \frac{\partial}{\partial z} \\ F_i & F_j & F_k \end{vmatrix} = \frac{\partial F \sin(\theta) \cos(\varphi)}{\partial x} \vec{i} + \frac{\partial F \sin(\theta) \sin(\varphi)}{\partial y} \vec{j} + \frac{\partial F \cos(\theta)}{\partial z} \vec{k} = \text{Rate Of Change of Rotation Of Force Causing Centripetal Velocity From}$$

$$\vec{a}_c = \frac{v^2}{r} \left| \vec{r} \right| \leftarrow \frac{\vec{F}}{m} \text{ Inducing Divergence Of Trajectory Of NonInertially Dampened Movement}$$

Which If Integrated Over All Div For 1 Dimension Provides Linear Acceleration Felt Equal & Opposite If UnDampened, If There Is Change In Rotation Of Force Felt As \vec{a}_c If UnDampened. Integration Of Curl Provides Acceleration In 3D. Integration Of Acceleration Provides Velocity. Integration Of Velocity Position (x,y,z).

$$\iiint_{\text{time=beginning}}^{\text{time=end}} \overline{Dv} (dt) = \iint_{\text{time=beginning}}^{\text{time=end}} m\vec{a} dt = \int_{\text{time=beginning}}^{\text{time=end}} \vec{v} dt = (x, y, z) = (r * \sin(\theta) \cos(\varphi), r * \sin(\theta) \sin(\varphi), r * \cos(\varphi))$$

$$\iiint_{\text{t=beginning}}^{\text{t=end}} \overline{Curl} (dt) = \iint_{\text{t=beginning}}^{\text{t=end}} m\vec{a} dt = \int_{\text{t=beginning}}^{\text{t=end}} \vec{v} dt = (x, y, z) = (r * \sin(\theta) \cos(\varphi), r * \sin(\theta) \sin(\varphi), r * \cos(\varphi))$$