

even and odd differential forms in 3D: no metric, no connexion

covariant multivectors
inner orientation: weight factor 1

covariant W-multivectors
outer orientation: weight factor $\frac{|\Lambda|}{\Lambda}$

even 0-form
point $\bar{\mathbf{P}}$

$$\alpha^{(0)} = 0$$

$$\beta^{(1)} = d\alpha^{(0)}$$

even 1-form
line $\bar{\mathbf{L}}$

$$\beta^{(1)} = b_i dx^i$$

$$\gamma^{(2)} = d\beta^{(1)}$$

even 2-form
surface $\bar{\mathbf{S}}$

$$\gamma^{(2)} = \frac{1}{2!} c_{ij} dx^i \wedge dx^j$$

$$\delta^{(3)} = d\gamma^{(2)}$$

even 3-form
volume $\bar{\mathbf{V}}$

$$\delta^{(3)} = \frac{1}{3!} d_{ijk} dx^i \wedge dx^j \wedge dx^k$$

odd 3-form
volume $\tilde{\mathbf{V}}$

$$\sigma^{(3)} = \frac{1}{3!} s_{ijk} dx^i \wedge dx^j \wedge dx^k$$

$$\sigma^{(3)} = d\rho^{(2)}$$

odd 2-form
surface $\tilde{\mathbf{S}}$

$$\rho^{(2)} = \frac{1}{2!} r_{ij} dx^i \wedge dx^j$$

$$\rho^{(2)} = d\theta^{(1)}$$

odd 1-form
line $\tilde{\mathbf{L}}$

$$\theta^{(1)} = \frac{1}{1!} q_i dx^i$$

$$\theta^{(1)} = d\pi^{(0)}$$

odd 0-form
point $\tilde{\mathbf{P}}$

$$\pi^{(0)} = p$$