$-0\cdot 1 - 1\cdot 1 = 1-1 = 0$ ✓ 4

iv) $\beta \wedge \beta = (\theta^1\wedge\theta^2 + \theta^1\wedge\theta^3 - \theta^2\wedge\theta^4)$
$= \wedge(\theta^1\wedge\theta^2 + \theta^1\wedge\theta^3 - \theta^2\wedge\theta^4)$
$\theta^1\wedge\theta^2\wedge\theta^1\wedge\theta^2 + \theta^1\wedge\theta^2\wedge\theta^1\wedge\theta^3$
$-\theta^1\wedge\theta^2\wedge\theta^2\wedge\theta^4 + \theta^1\wedge\theta^3 + \theta^1\wedge\theta^2$
$+\theta^1\wedge\theta^3\wedge\theta^1\wedge\theta^3 - \theta^1\wedge\theta^3\wedge\theta^2\wedge\theta^4$
$-\theta^2\wedge\theta^4\wedge\theta^1\wedge\theta^2 - \theta^2\wedge\theta^4\wedge\theta^1\wedge\theta^3$
$+\theta^2\wedge\theta^4\wedge\theta^2\wedge\theta^4$

$= -\theta^1\wedge\theta^3\wedge\theta^2\wedge\theta^4 - \theta^2\wedge\theta^4\wedge\theta^1\wedge\theta^3$
$= \theta^1\wedge\theta^2\wedge\theta^3\wedge\theta^4 - \theta^1\wedge\theta^2\wedge\theta^4\wedge\theta^3$
$= 2\theta^1\wedge\theta^2\wedge\theta^3\wedge\theta^4$

$\Rightarrow \beta\wedge\beta(v_1, v_2, v_3, v_4)$ ✓
$= 2\theta^1\wedge\theta^2\wedge\theta^3\wedge\theta^4(v_1, v_2, v_3, v_4)$ 4
$= 2\det(\langle v_\alpha, \theta^\beta\rangle)$ see OPP. 15

3)i) If λ, μ are vector valued 3 forms on a vector space V, define
$\lambda(v_1, v_2, v_3) + \mu(v_1, v_2, v_3)$
$= (\lambda+\mu)(v_1, v_2, v_3)$
$\Rightarrow \lambda+\mu$ is a vector valued 3 form.
Define also, for $c\in\mathbb{R}$
$(c\cdot\lambda)(v_1, v_2, v_3) = c(\lambda(v_1, v_2, v_3))$, 2
then $c\lambda$ is a vector valued 3-form.
See over leaf
Also the zero vector valued three form is a member of this space, since $\underline{0}\in V. \Rightarrow$
$0(v_1, v_2, v_3) \to \underline{0}$ and $0(v_1, v_2, v_3)\in L$.
$\Rightarrow$ set of vector valued 3-forms is a vector space.