

You must show that  
 $\lambda + \mu$  is a vector-valued three form  
i.e. that it is alternating and  
multilinear.

Alternating:

$$\begin{aligned}(\lambda + \mu)(v_2, v_1, v_3) &= \lambda(v_2, v_1, v_3) + \mu(v_2, v_1, v_3) \\&= -\lambda(v_1, v_2, v_3) - \mu(v_1, v_2, v_3) \\&= -(\lambda + \mu)(v_1, v_2, v_3)\end{aligned}$$

multilinear

$$\begin{aligned}(\lambda + \mu)(v_1, v_2, v_3 + v_3') &= \\&= \lambda(v_1, v_2, v_3 + v_3') + \mu(v_1, v_2, v_3 + v_3') \\&= \lambda(v_1, v_2, v_3) + \lambda(v_1, v_2, v_3') \\&\quad + \mu(v_1, v_2, v_3) + \mu(v_1, v_2, v_3')\end{aligned}$$

(You can now finish it, I'm sure)

You do these arguments correctly  
in (ii) and (iii).