16. $\|u+v\|^2 + \|u-v\|^2 = 2\|u\|^2 + 2\|v\|^2$

$\|u+v\|^2 = (u+v)\cdot(u+v) = u\cdot u + u\cdot v + v\cdot u + v\cdot v = \|u\|^2 + 2(u\cdot v) + \|v\|^2$

$\|u-v\|^2 = (u-v)(u-v) = u\cdot u - u\cdot v - v\cdot u + v\cdot v = \|u\|^2 - 2(u\cdot v) + \|v\|^2$

do clearly, by adding $\|u+v\|^2$ to $\|u-v\|^2$, the result is $2\|u\|^2 + 2\|v\|^2$.

22. $v\cdot(k_1 w_1 + k_2 w_2) = k_1 \underbrace{(v\cdot w_1)}_{0} + k_2 \underbrace{(v\cdot w_2)}_{0} = 0. \checkmark$