Let $y \in \mathbb{Y}_3(\mathbb{C})$ be defined as:

$$y = (1+i) + (2-i)\mathbf{v}_1 + (-3+2i)\mathbf{v}_2$$

We want to compute 2^y. The full expression for 2^y is:

$$2^y = 2 \cdot (\cos(\ln 2) + i \sin(\ln 2)) \cdot \sum_{k=0}^{\infty} \sum_{m=0}^{k} \frac{\binom{k}{m} (2-i)^m (-3+2i)^{k-m} \mathbf{v}_1^m \mathbf{v}_2^{k-m} (\ln 2)^k}{k!}$$

This expression combines the scalar and higher-dimensional parts of y, where $\mathbf{v}_1$ and $\mathbf{v}_2$ are the basis elements of $\mathbb{Y}_3(\mathbb{C})$, and the summation expands the powers of these basis elements.