

1 | dot product

def

For $x, y \in^n$, the *dot product* of x and y , denoted $x \cdot y$, is defined by

$$x \cdot y = x_1y_1 + \cdots + x_ny_n$$

where $x = x_1, \dots, x_n, y = y_1, \dots, y_n$

2 | to work with complex vectors, we define the inner product.