

Example

$$(x+iy)(2+4i) = 2 + 14i$$

$$2x - 4y + i(2y + 4x) = 2 + 14i$$

This will happen if

$$2x - 4y = 2$$

$$4x + 2y = 14.$$

To solve this system, we use elimination

$$\begin{array}{r} 2x - 4y = 2 \\ + 2(4x + 2y = 14) \\ \hline \end{array}$$

$$10x = 30$$

$$x = 3.$$

Let $x=3$, then ~~$6 - 4y =$~~
 $2x - 4y = 6 - 4y = 2$

$$4 = 4y$$

$$\underline{y = 1.}$$

$$\underline{x=3}, \underline{y=1}$$