

Tareu 1

$$\frac{2-i}{3+4i} + i^{25} = a+bi, \quad a, b \in \mathbb{R}$$

$$\frac{2-i}{3+4i} + i = a+bi$$

$$\frac{(2-i)(3-4i)}{9+16} + i = a+bi$$

$$\frac{2-11i}{25} + \frac{25i}{25} = a+bi$$

$$\frac{2+14i}{25} = a+bi$$

$$\boxed{\begin{aligned} a &= \frac{2}{25} \\ b &= \frac{14}{25} \end{aligned}}$$

$$\begin{aligned} i^{25} &= i \cdot \overset{12}{\overbrace{(i^2)}^{12}} \\ &= i \cdot (-1)^{12} \\ &= i \cdot 1 \\ &= i \end{aligned}$$

$$\begin{aligned} (2-i)(3-4i) &= 6-8i-3i-4 \\ &= 2-11i \end{aligned}$$