SOLUCIONES DE RESOLVER OPERACIONES CON NÚMEROS COMPLEJOS

1. Realiza las siguientes operaciones:

$$\frac{(5_{102})^7}{5_{60}} = \frac{78125_{714}}{5_{60}} = 15625_{654} = \mathbf{15625_{294}}$$

$$\frac{(16_{208})^2}{8_{10}} = \frac{256_{416}}{8_{10}} = 32_{406} = \mathbf{32_{46}}$$

$$\frac{(5+4i)-(2-8i)}{(4-9i)+(-9+5i)} = \frac{3+12i}{-5-4i} \cdot \frac{-5+4i}{-5+4i} =$$

$$\frac{-15+12i-60i+48i^2}{25+16} = \frac{\mathbf{-63-48i}}{\mathbf{41}}$$

$$\frac{(15-8i)+(12-6i)}{(-14+3i)-(-19-4i)} = \frac{27-14i}{5+7i} \cdot \frac{5-7i}{5-7i} =$$

$$\frac{135-189i-70i+98i^2}{25+49} = \frac{\mathbf{37-259i}}{\mathbf{74}}$$

$$\frac{i^4 - i^{-8}}{2i} = \frac{i^4 - \frac{1}{i^8}}{2i} = \frac{\frac{i^{12}}{i^8} - \frac{1}{i^8}}{2i} = \frac{\frac{i^{12}-1}{i^8}}{2i} = \frac{i^{12}-1}{2i^9} = \frac{i^0 - 1}{2 \cdot i^1}$$

$$= \frac{1-1}{2i} = \mathbf{0}$$