TEMA: Potenciación y radicación con números complejos
APORTE: DEBER
FECHA:
CURSO: 3 BGU

Determine las siguientes potencias de los números complejos:

1. $\boldsymbol{Z_1{}^2 = (cos30° + isen30°)^2}$

   $Z_1 = 1^2(\cos(2 * 30°) + isen(2 * 30°))$

   $Z_1 = \_\_(cos\_\_ + isen\_\_\_)$

2. $\boldsymbol{Z_2{}^4 = [2(\cos 75° + isen75°)]^4}$

   $Z_2 = 2^4(cos(4 * 75°) + isen(4 * 75°))$

   $Z_2 = \_\_(cos\_\_ + isen\_\_\_)$

Determine las raíces de los siguientes números complejos:

3. $\boldsymbol{\sqrt[2]{Z} = \sqrt[2]{81(cos30° + i\ sen\ 30°)}}$

   $Z_0 = \sqrt{81}\left(\cos\left(\frac{30 + 360 * 0}{2}\right) + isen\left(\frac{30 + 360 * 0}{2}\right)\right)$

   $\boldsymbol{Z_0 = \_\_(cos\_\_ + isen\_\_\_)}$

   $Z_1 = \sqrt{81}\left(\cos\left(\frac{30 + 360 * 1}{2}\right) + isen\left(\frac{30 + 360 * 1}{2}\right)\right)$

   $\boldsymbol{Z_1 = \_\_(cos\_\_ + isen\_\_\_)}$

4. $\boldsymbol{\sqrt[3]{Z} = \sqrt[3]{64(cos45° + i\ sen\ 45°)}}$

   $Z_0 = \sqrt[3]{64}\left(\cos\left(\frac{45 + 360 * 0}{3}\right) + isen\left(\frac{45 + 360 * 0}{3}\right)\right)$

   $\boldsymbol{Z_0 = \_\_(cos\_\_ + isen\_\_\_)}$

   $Z_1 = \sqrt[3]{64}\left(\cos\left(\frac{45 + 360 * 1}{3}\right) + isen\left(\frac{45 + 360 * 1}{3}\right)\right)$

   $\boldsymbol{Z_1 = \_\_(cos\_\_ + isen\_\_\_)}$

   $Z_2 = \sqrt[3]{64}\left(\cos\left(\frac{45 + 360 * 2}{3}\right) + isen\left(\frac{45 + 360 * 2}{3}\right)\right)$

$\boldsymbol{Z_2 = \_\_(cos\_\_ + isen\_\_)}$

5. $\boldsymbol{\sqrt[4]{Z} = \sqrt[4]{2401(cos60° + i\ sen\ 60°)}}$

$$Z_0 = \sqrt[4]{2401}\left(\cos\left(\frac{60 + 360 * 0}{4}\right) + isen\left(\frac{60 + 360 * 0}{4}\right)\right)$$

$\boldsymbol{Z_0 = \_\_(cos\_\_ + isen\_\_)}$

$$Z_1 = \sqrt[4]{2401}\left(\cos\left(\frac{60 + 360 * 1}{4}\right) + isen\left(\frac{60 + 360 * 1}{4}\right)\right)$$

$\boldsymbol{Z_1 = \_\_(cos\_\_ + isen\_\_)}$

$$Z_2 = \sqrt[4]{2401}\left(\cos\left(\frac{60 + 360 * 2}{4}\right) + isen\left(\frac{60 + 360 * 2}{4}\right)\right)$$

$\boldsymbol{Z_2 = \_\_(cos\_\_ + isen\_\_)}$

$$Z_3 = \sqrt[4]{2401}\left(\cos\left(\frac{60 + 360 * 3}{4}\right) + isen\left(\frac{60 + 360 * 3}{4}\right)\right)$$

$\boldsymbol{Z_3 = \_\_(cos\_\_ + isen\_\_)}$