

Desarrollo

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① a) $z_1 + z_2 = (3 + 8i) + (-43 - 10i)$

$$= 3 + 8i - 43 - 10i$$

$$= -40 - 2i$$

b) $z_1 - z_2 = (3 + 8i) - (-43 - 10i)$

$$= 3 + 8i + 43 + 10i$$

$$= 46 + 18i$$

c) $z_1 / z_2 = \frac{3 + 8i}{-43 - 10i}$

$$= \frac{3 + 8i}{-43 - 10i} \cdot \frac{-43 + 10i}{-43 + 10i}$$

$$= \frac{-129 + 30i - 344i + 80i^2}{1849 - 100i^2 - 1}$$

$$= \frac{-129 - 314i - 80}{1949}$$

$$= \frac{-209 - 314i}{1949}$$

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~~Andrés González~~

a) $z^7 + 1 = 0$

$$z^7 = -1$$

$$z = \sqrt[7]{-1}$$

$$z = (-1)^{1/7}$$

1. Pasar a polar

$$z = r e^{i(\theta + 2\pi n)}$$

$$r = \sqrt{x^2 + y^2}$$

$$r = \sqrt{(-1)^2 + 0^2}$$

$$r = \sqrt{1}$$

$$\theta = \tan^{-1}\left(\frac{y}{x}\right)$$

$$\theta = \tan^{-1}\left(\frac{0}{-1}\right)$$

$$\theta = \tan^{-1}\left(\frac{0}{-1}\right)$$

$$\theta = 0$$

$$C = 3, 0$$

$$z = \sqrt{1} e^{i(0 + 2\pi n)}$$

$$z^{1/7} = \left(\sqrt{1} e^{i(0 + 2\pi n)} \right)^{1/7}$$

Para $n=0$

Distribuimos

$$z^{1/7} = \left(\sqrt{1} \right)^{1/7} e^{i(0 + 2\pi n) \cdot \frac{1}{7}}$$

$$z^{1/7} = \left(1^{1/2} \right)^{1/7} e^{i(2\pi n) \cdot \frac{1}{7}}$$

$$z^{1/7} = 1^{1/4} e^{i \frac{2\pi n}{7}}$$

$$z^{1/7} = 1^{1/4} e^{i \frac{2\pi n}{7}}$$

Para $n=0$

$$R_0 = 1^{1/4} e^{i(0)}$$

$$= 1^{1/4} (\cos(0) + i \sin(0))$$

$$= 1^{1/4} (1 + i0)$$

$$= 1 + i0$$