$$x_n = (A+iB)(\delta e^{i\theta})^n + (A-iB)(\delta e^{-i\theta})^n$$

$$= \delta^n\left[(A+iB)e^{in\theta} + (A-iB)e^{-in\theta}\right]$$

$$= \delta^n\left[(A+iB)(\cos n\theta + i\sin n\theta) + (A-iB)(\cos n\theta - i\sin n\theta)\right]$$

$$= \delta^n\left[2A\cos n\theta + 2(i^2)B\sin n\theta\right]$$