De Moivre’s Theorem

Example

Prove by induction that $z^{n}=r^{n}\left(\cos(nθ)+i\sin(nθ)\right)$

De Moivre’s Theorem: Exponential Form

Examples

1. Simplify $\frac{\left(\cos(\frac{9π}{17})+i\sin(\frac{9π}{17})\right)^{5}}{\left(\cos(\frac{2π}{17}) - i\sin(\frac{2π}{17})\right)^{3}}$
2. Express $\left(1+\sqrt{3} i\right)^{7}$ in the form $x+iy$ where $x,y\in R$.

Test your understanding



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