

Pre Calculus 8 3 Complex form vs Polar or Trigonometric Form. Demovires Theorem

Lesson 213 | Precalculus | Complex polar form and De Moivre's theorem

<https://www.youtube.com/watch?v=vmRfCE49zl0>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Let $z=4(\cos(\pi/2)+i \sin(\pi/2))$. Find z^5 in trigonometric form.

02

Let $z=13(\cos(\pi/2)+i \sin(\pi/2))$. Find z^6 in trigonometric form.

03

Let $z=9(\cos(\pi/12)+i \sin(\pi/12))$. Find z^4 in trigonometric form.

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04

Let $z=10(\cos(\pi/4)+i \sin(\pi/4))$. Find z^2 in trigonometric form.

05

Let $z=3(\cos(\pi/8)+i \sin(\pi/8))$. Find z^7 in trigonometric form.

06

Let $z=6(\cos(\pi/9)+i \sin(\pi/9))$. Find z^5 in trigonometric form.

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01

Let $z=4(\cos(\pi/2)+i \sin(\pi/2))$. Find z^5 in trigonometric form.

De Moivre: raise the modulus and multiply the argument. $z^5=1024(\cos(5\pi/2)+i \sin(5\pi/2))$.
Arguments may be reduced modulo 2π .

02

Let $z=13(\cos(\pi/2)+i \sin(\pi/2))$. Find z^6 in trigonometric form.

De Moivre: raise the modulus and multiply the argument. $z^6=4826809(\cos(6\pi/2)+i \sin(6\pi/2))$.
Arguments may be reduced modulo 2π .

03

Let $z=9(\cos(\pi/12)+i \sin(\pi/12))$. Find z^4 in trigonometric form.

De Moivre: raise the modulus and multiply the argument. $z^4=6561(\cos(4\pi/12)+i \sin(4\pi/12))$.
Arguments may be reduced modulo 2π .

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04

Let $z=10(\cos(\pi/4)+i \sin(\pi/4))$. Find z^2 in trigonometric form.

De Moivre: raise the modulus and multiply the argument. $z^2=100(\cos(2\pi/4)+i \sin(2\pi/4))$.
Arguments may be reduced modulo 2π .

05

Let $z=3(\cos(\pi/8)+i \sin(\pi/8))$. Find z^7 in trigonometric form.

De Moivre: raise the modulus and multiply the argument. $z^7=2187(\cos(7\pi/8)+i \sin(7\pi/8))$.
Arguments may be reduced modulo 2π .

06

Let $z=6(\cos(\pi/9)+i \sin(\pi/9))$. Find z^5 in trigonometric form.

De Moivre: raise the modulus and multiply the argument. $z^5=7776(\cos(5\pi/9)+i \sin(5\pi/9))$.
Arguments may be reduced modulo 2π .