

Watch. Practice. Understand. | Lesson 213

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

Watch the matching video: <https://www.youtube.com/watch?v=vmRfCE49zI0>

Practice focus: Complex polar form and De Moivre's theorem

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Write $1 + i$ in polar form.

02 Compute $(1 + i)^4$ using polar form.

03 Find all cube roots of 8 in complex form.

04 Multiply $2(\cos 30^\circ + i \sin 30^\circ)$ by $3(\cos 45^\circ + i \sin 45^\circ)$.

Worked answers | Lesson 213

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

Watch the matching video: <https://www.youtube.com/watch?v=vmRfCE49zI0>

Practice focus: Complex polar form and De Moivre's theorem

Original extra practice matched to the listed lesson topic.

01 Write $1 + i$ in polar form.

Magnitude $\sqrt{2}$ and argument $\pi/4$ give $\sqrt{2}(\cos(\pi/4) + i \sin(\pi/4))$.

02 Compute $(1 + i)^4$ using polar form.

Magnitude $(\sqrt{2})^4 = 4$; angle $4(\pi/4) = \pi$. Result: -4 .

03 Find all cube roots of 8 in complex form.

$r = 2$; angles $0, 2\pi/3, 4\pi/3$. Roots: $2, -1 + i\sqrt{3}, -1 - i\sqrt{3}$.

04 Multiply $2(\cos 30^\circ + i \sin 30^\circ)$ by $3(\cos 45^\circ + i \sin 45^\circ)$.

Multiply magnitudes and add angles: $6(\cos 75^\circ + i \sin 75^\circ)$.