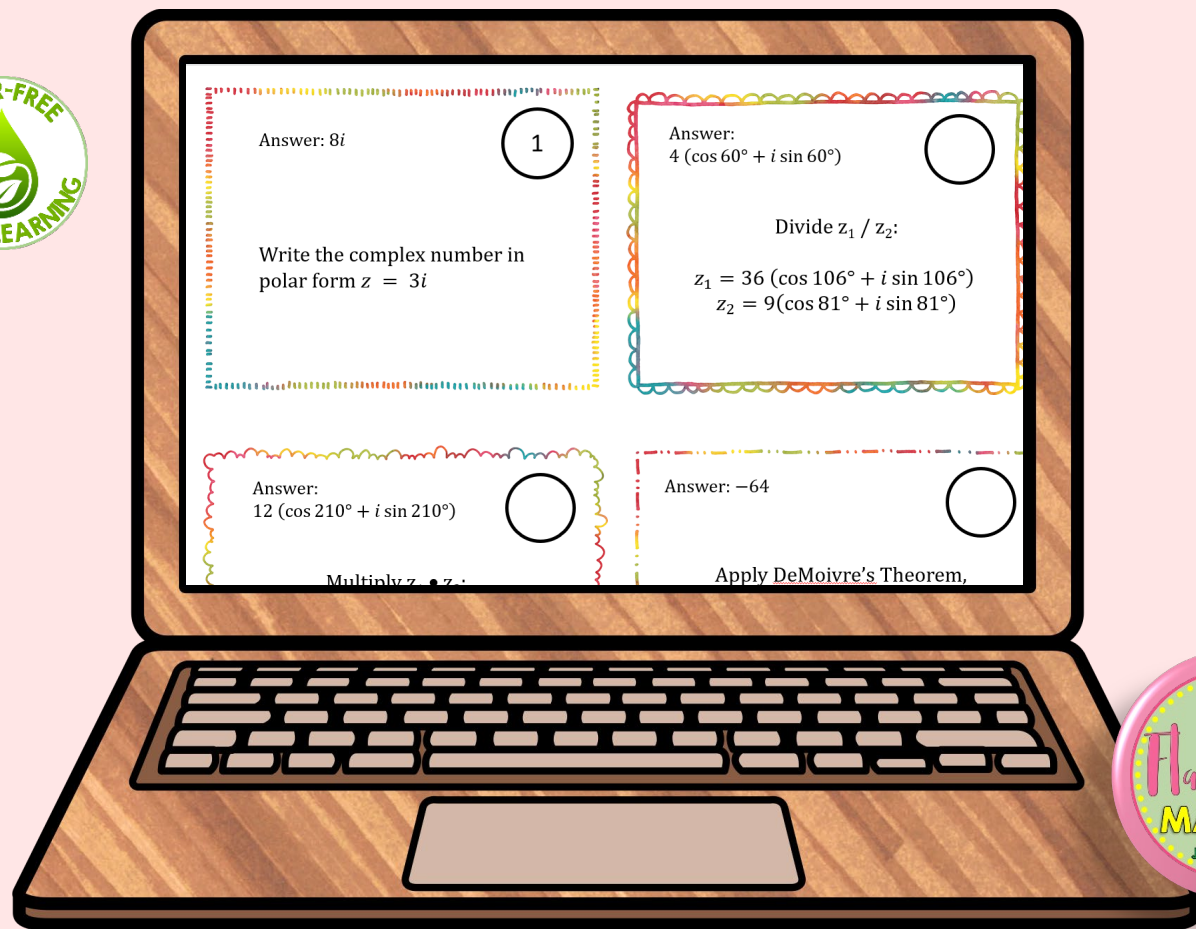
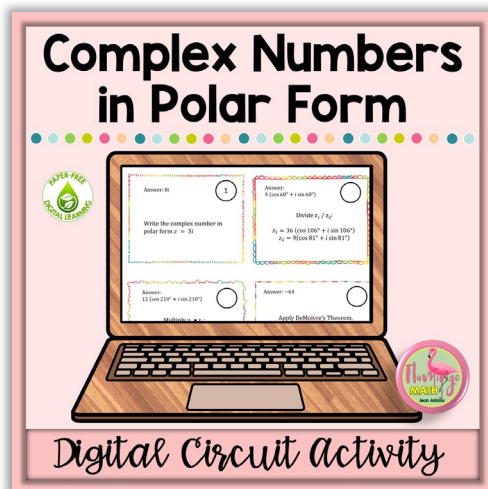


Complex Numbers in Polar Form



Digital Circuit Activity



PreCalculus Analytic Trigonometry Circuit-Style Unit Review with Google Slides

Your PreCalculus students will have 24 self-checking questions related to your unit on Applications of Trigonometry which can be used as a class assignment, a distance learning activity or as an assessment.

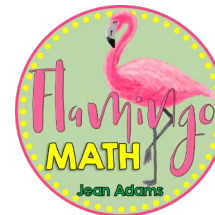
QUESTION STEMS:

1. Write complex numbers in trigonometric form
2. Write complex numbers in polar form
3. Find the conjugate of a complex number and moduli
4. Find the absolute value of complex numbers
5. Find product and quotients of complex numbers
6. Apply De Moivre's Theorem to find nth root of complex numbers

NOTE: You and your students must have a free Google account in order to access and interact with the activity.
It is not necessary to use Google Classroom to use this resource.

This GOOGLE SLIDES™ activity is NOT EDITABLE in order to protect the copyright for clipart used in the resource.





Complex Numbers in Polar Form Circuit Activity

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Answer: $8i$

1

Write the complex number
in polar form.

Answer:
 $4(\cos 60^\circ + i \sin 60^\circ)$

#

Divide z_1 / z_2

$$z_1 = 36(\cos 106^\circ - i \sin 106^\circ)$$
$$z_2 = 9(\cos 19^\circ - i \sin 81^\circ)$$

Answer: $2 + 2i\sqrt{3}$

#

Write in rectangular form:

$$4(\cos 330^\circ + i \sin 330^\circ)$$

Answer:
 $12(\cos 210^\circ + i \sin 210^\circ)$

#

Multiply $z_1 \cdot z_2$:

$$z_1 = 6(\cos 43^\circ + i \sin 43^\circ)$$
$$z_2 = 5(\cos 32^\circ + i \sin 32^\circ)$$

Answer: -64

#

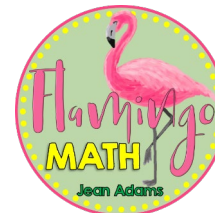
Apply DeMoivre's Theorem,
write your answer in rectangular
form:

$$z = (3 - 3i)^3$$

Answer: $|z| = 2, \theta = 30^\circ$

#

Calculate $|z|$ and θ for $z = 1 + i$



Answer: $-4 + 4i\sqrt{3}$

#

Apply DeMoivre's Theorem,
write your answer in rectangular
form:

$$z = [4(\cos 15^\circ + i \sin 15^\circ)]^3$$

Answer: $-3 + 0i$

#

Multiply $z_1 \bullet z_2$:

$$z_1 = 4(\cos 80^\circ + i \sin 80^\circ)$$

$$z_2 = 5(\cos 40^\circ + i \sin 40^\circ)$$

Answer: $|z| = \sqrt{2}, \theta = 45^\circ$

#

Calculate $|z|$ and θ for $z = -2 + 2i$

Answer: $30(\cos 75^\circ + i \sin 75^\circ)$

#

Divide z_1 by z_2 :

$$z_1 = 8(\cos 60^\circ + i \sin 60^\circ)$$

$$z_2 = 2(\cos 15^\circ + i \sin 15^\circ)$$

Answer: $3(\cos 90^\circ + i \sin 90^\circ)$

#

Write the complex number in
polar form $z = 1 - i$

Answer: $-4 - 54i$

#

Apply DeMoivre's Theorem,
write your answer in rectangular
form:

$$z = (-1 + i)^6$$

Answer: $32i\sqrt{2}$

#

Apply DeMoivre's Theorem,
write your answer in rectangular
form:

$$z = [2(\cos 240^\circ + i \sin 240^\circ)]^3$$

Answer: $2\sqrt{3} - 2i$

#

Write in rectangular form:

$$3(\cos 180^\circ + i \sin 180^\circ)$$

Answer: $4(\cos 25^\circ + i \sin 25^\circ)$

#

Apply DeMoivre's Theorem,
write your answer in rectangular
form:

$$z = [2(\cos 40^\circ + i \sin 40^\circ)]^3$$

Answer: $2\sqrt{3}(\cos 150^\circ + i \sin 150^\circ)$

#

Write the complex number in
polar form $z = -6i$