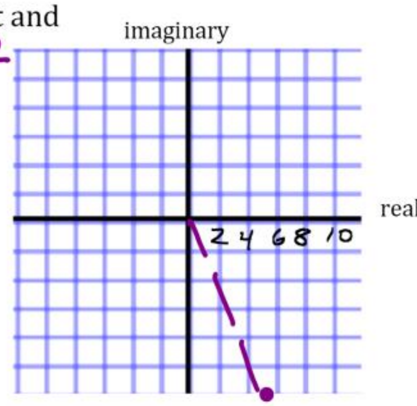
Monday, April 29, 2019
5:25 PM

Name KEY Date:

6.5B Do Now:

1. Plot the complex number on the graph to the right and find its absolute value: $5 - 12\boldsymbol{i}$ $a=5 \quad b=-12$



$r = \sqrt{a^2+b^2}$

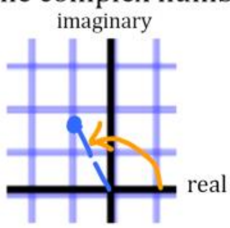
$r = \sqrt{5^2+(-12)^2}$

$r = \sqrt{169}$

$\boxed{r = 13}$

2. Write the complex number in trig form:

$z = -1 + \sqrt{3}\boldsymbol{i}$



$a = -1$

$b = \sqrt{3}$

≈ 1.7

$r = \sqrt{a^2+b^2}$

$r = \sqrt{(-1)^2+(\sqrt{3})^2}$

$r = \sqrt{4}$

$r = 2$

$\tan\theta' = \frac{b}{a}$

$\tan\theta' = \frac{\sqrt{3}}{-1} = -\sqrt{3}$

$\theta' = \frac{\pi}{3}$ θ in Q II

$\theta = \frac{2\pi}{3}$

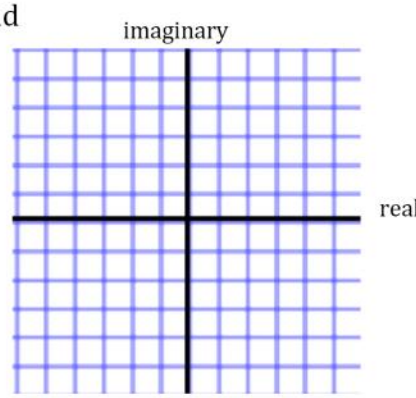
$z = r(\cos\theta + i\sin\theta)$

$z = \boxed{2\left(\cos\frac{2\pi}{3} + i\sin\frac{2\pi}{3}\right)}$

Name Date:

6.5B Do Now:

1. Plot the complex number on the graph to the right and find its absolute value: $5 - 12\boldsymbol{i}$



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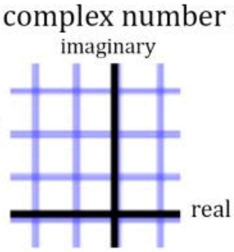
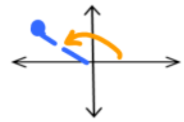


$a = 4$
$b = -4\sqrt{3}$

$z = r(\cos\theta + i\sin\theta)$



$a = -7$
$b = 4$

3. Find the trig form of

a. $4 - 4\sqrt{3}\boldsymbol{i}$

$r = \sqrt{a^2 + b^2}$

$r = \sqrt{4^2 + (-4\sqrt{3})^2}$

$r = \sqrt{16 + 48}$

$r = \sqrt{64}$

$r = 8$

$\tan\theta' = \frac{b}{a}$

$\tan\theta' = -\frac{4\sqrt{3}}{4} = -\sqrt{3}$

$\theta' = \frac{\pi}{3}$

QIV $\theta = \frac{5\pi}{3}$

$$\boxed{z = 8\left(\cos\frac{5\pi}{3} + i\sin\frac{5\pi}{3}\right)}$$

b. $-7 + 4\boldsymbol{i}$

$r = \sqrt{a^2 + b^2}$

$r = \sqrt{(-7)^2 + (4)^2}$

$r = \sqrt{65}$

$\tan\theta' = \frac{b}{a}$

$\tan\theta' = \frac{4}{-7}$

$\theta' \approx \cancel{-}.519$ ← STO

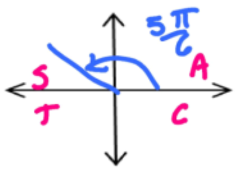
QII $\theta = \pi - .519$

$\theta = 2.62$

$$\boxed{z = \sqrt{65}(\cos 2.62 + i\sin 2.62)}$$

4. Write in standard form: $6\left(\cos\frac{5\pi}{6} + \boldsymbol{i}\sin\frac{5\pi}{6}\right)$

* evaluate



$\theta' = \frac{\pi}{6}$

$6\left(-\frac{\sqrt{3}}{2} + i\left(\frac{1}{2}\right)\right)$

$= \boxed{-3\sqrt{3} + 3i}$

3. Find the trig form of

a. $4 - 4\sqrt{3}\boldsymbol{i}$

b. $-7 + 4\boldsymbol{i}$

4. Write in standard form: $6\left(\cos\frac{5\pi}{6} + \boldsymbol{i}\sin\frac{5\pi}{6}\right)$