

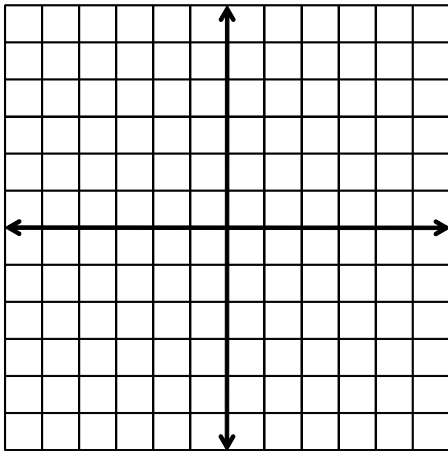
# Precalculus

## 6-06 Trigonometric Form of a Complex Number

### Graph Complex Number

- $a + bi$
- Graph by moving \_\_\_\_\_  $a$ , and \_\_\_\_\_  $b$
- $x$ -axis is \_\_\_\_\_
- $y$ -axis is \_\_\_\_\_

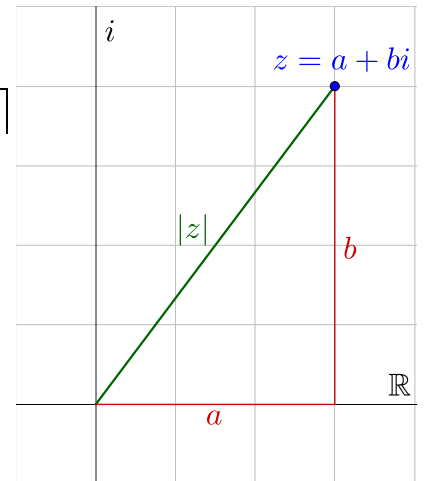
Graph (a)  $2 + 3i$  and (b)  $-3 - 4i$



### Absolute Value of a Complex Number

- Absolute value is \_\_\_\_\_ from \_\_\_\_\_
  - $|a + bi| = \sqrt{a^2 + b^2}$

$|4 + i|$



### Trig Form of a Complex Number

- $a = r \cos \theta$
- $b = r \sin \theta$
- $r = \sqrt{a^2 + b^2}$
- $\tan \theta = \frac{b}{a}$
  
- $z = a + bi$
- $z = r \cos \theta + r \sin \theta i$
- $z = r(\cos \theta + i \sin \theta)$ 
  - $r$  is \_\_\_\_\_,  $\theta$  is \_\_\_\_\_

Write in standard form:  $z = 8 \left( \cos \frac{2\pi}{3} + i \sin \frac{2\pi}{3} \right)$

Write in trig form:  $z = -2 - 2i$