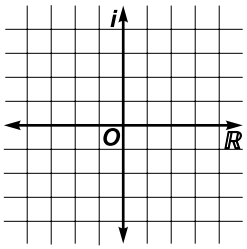
NAME _____ DATE _____ PERIOD _____

Practice

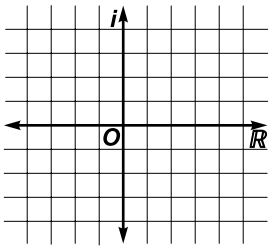
The Complex Plane and Polar Form of Complex Numbers

Graph each number in the complex plan and find its absolute value.

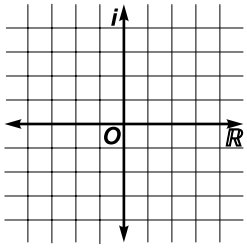
1. $z = 3\boldsymbol{i}$



2. $z = 5 + \boldsymbol{i}$



3. $z = -4 - 4\boldsymbol{i}$



Express each complex number in polar form.

4. $3 + 4\boldsymbol{i}$

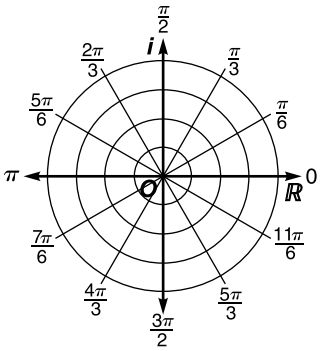
5. $-4 + 3\boldsymbol{i}$

6. $-1 + \boldsymbol{i}$

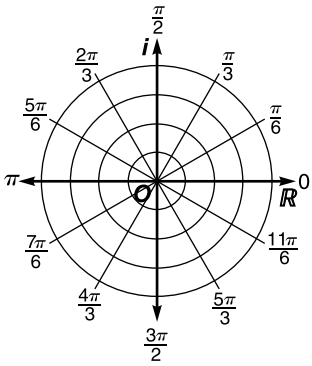
7. $1 - \boldsymbol{i}$

Graph each complex number. Then express it in rectangular form.

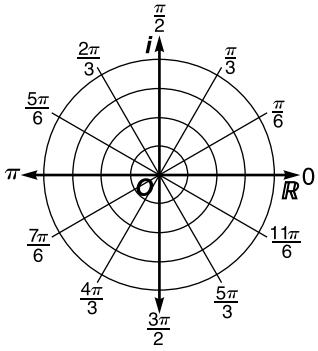
8. $2\left(\cos \frac{3\pi}{4} + \boldsymbol{i} \sin \frac{3\pi}{4}\right)$



9. $4\left(\cos \frac{5\pi}{6} + \boldsymbol{i} \sin \frac{5\pi}{6}\right)$



10. $3\left(\cos \frac{4\pi}{3} + \boldsymbol{i} \sin \frac{4\pi}{3}\right)$



11. ***Vectors*** The force on an object is represented by the complex number $8 + 21\boldsymbol{i}$, where the components are measured in pounds. Find the magnitude and direction of the force.