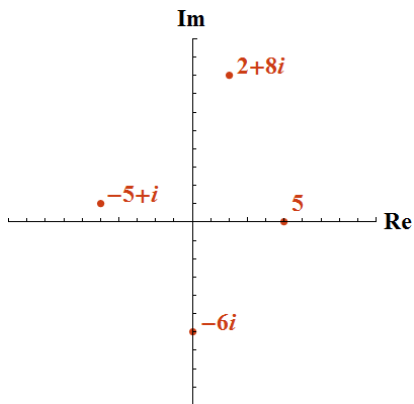


## Discovery Exercise for The Complex Plane

Every point on the “complex plane” represents one complex number. The location on the horizontal axis represents the real part of the number; the vertical axis is the imaginary part.



1. On the drawing of the complex plane above, mark and label the three points corresponding to the numbers  $-3$ ,  $9i$ , and  $-3 + 9i$ .
2. A “pure imaginary” number is a real number times  $i$ . (In other words it has an imaginary part but no real part.) Where are the pure imaginary numbers located on the complex plane?
3. Draw an arbitrary point somewhere in the first quadrant, and label it  $a + bi$ . Then draw and label its complex conjugate.
4. If you graph all the points that can be written  $x - 3i$  where  $x$  is a real number, what is the resulting shape?