

12.1 – Simplifying Imaginary Numbers

Up until now, you've been told that you can't take the square root of a negative number. Now, however, you can take the square root of a negative number, but it involves using a new number to do it. This new number is called " i ", standing for "imaginary".

We define i as $i = \sqrt{-1}$. So, $i^2 = \underline{\hspace{2cm}}$.

Simplify the following using i .

1. $\sqrt{-8}$

2. $\sqrt{-2}$

3. $\sqrt{-100}$

Now that you've seen how imaginaries work, it's time to move on to complex numbers. "Complex" numbers have two parts, a "real" part (being any "real" number that you're used to dealing with) and an "imaginary" part (being any number with an " i " in it).

The "standard" form for complex numbers is " $a + bi$ "; that is, real-part first and i -part last.

Write the complex number in the form $a + bi$.

1. $\sqrt{-9} + 6$

2. $\sqrt{-18} - 7$

3. $9 + \sqrt{-54}$