

Name _____

Date _____

Conjugates and Dividing Complex Numbers - Guided Lesson Explanation

Explanation#1

To find the conjugates remember: The conjugate of $a + bi = a - bi$

$$- 9i = 9i$$

Explanation#2

We will follow a very similar procedure to number 1.

Using: $a + bi = a - bi$

$$5 + 20i = 5 - 20i$$

Explanation#3

Step 1) First we have to find the conjugate using: $a + bi = a - bi$

Original number: $6 + 5i$ (Determine the conjugate of the denominator.)

Conjugate: $6 - 5i$

$$\frac{(3)}{(6 + 5i)} \times \frac{(6 - 5i)}{(6 - 5i)} = \frac{(3)(6 - 5i)}{(6 + 5i)(6 - 5i)} \quad \text{Multiply the top and bottom by the conjugate.}$$

$$\frac{18 - 15i}{36 - 25i} = \frac{18 - 15i}{36 - 25(-1)} \quad \text{Step 3) Simplify}$$

$$\frac{18 - 25i}{36 + 25}$$

$$\frac{18 - 25i}{61}$$

