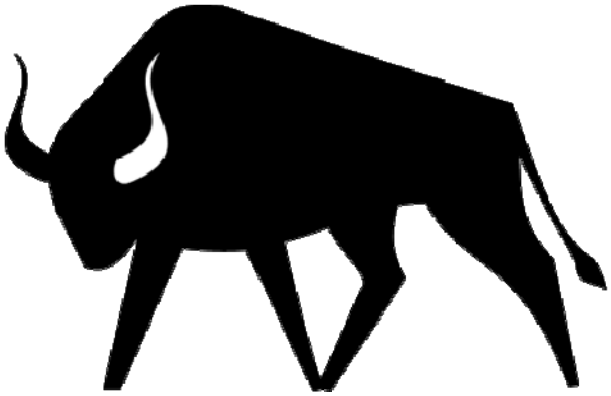
Name _____ Date _____

Conjugates and Dividing Complex Numbers - Step-by-Step Lesson



Find the quotient:

$$\frac{7}{4+3i}$$

Explanation:

To finding conjugates remember: The conjugate of a + bi = a - bi

Original number: 4 + 3i

Step 1) Determine the conjugate of the denominator.

Conjugate: 4 – 3i

$$\frac{(7)}{(4+3i)} \times \frac{(4-3i)}{(4-3i)} = \frac{(7)(4-3i)}{(4+3i)(4-3i)}$$ Step 2) Multiply the top and bottom by the conjugate.

$$\frac{28-21i}{16-9i^2} = \frac{28-21i}{16-9(-1)}$$ Step 3) Simplify

$$\frac{28-21i}{16+9}$$

$$\frac{28-21i}{25} = \frac{7(4-3i)}{25}$$

So the answer is $\frac{7(4-3i)}{25}$