

Lesson 25: Complex Numbers Part 2 (5.10)

By the end of the lesson, we will be able to:

- ~ Find conjugates of complex numbers
- ~ Simplify fractions by using complex conjugates.

Review: Simplify each expression:

a) $(2 + 3i)(4 - 5i)$

b) $(\sqrt{5} + 2i)^2$

What is the product of a Complex number and its conjugate?

$$(2 + 3i)(2 - 3i)$$

What is the conjugate?

a.) $(-3 + 8i)$

b.) $(5 - i)$

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Examples: What is the conjugate?

a.) $10i$

b.) $7 - 8i$

c.) $3 - i\sqrt{2}$

d.) $-15i$

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Examples: Find the product of each complex number and its conjugate.

a.) $9 + 2i$

b.) $5 - 7i$

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Examples: Find the product of each complex number and its conjugate.

a.) $1 + 2i$

b.) $7 - 3i$

Complex Conjugates

Just like with radicals, we do not like complex numbers in the denominator of a fraction.

We get rid of complex expressions by multiplying (both top & bottom) by its conjugate.

We get rid of monomials with i 's by multiplying (top & bottom) by an i .

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Examples: Simplify each expression.

a.) $\frac{2 + 7i}{-5i}$

b.) $\frac{2 - 4i}{1 + 3i}$

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Examples: Simplify each expression.

c.) $\frac{3}{6 + 4i}$

d.) $\frac{3}{\sqrt{5} + 2i}$

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Examples: Simplify each expression.

e.) $\frac{3 - 6i}{-4i}$

f.) $\frac{3}{\sqrt{2} - 5i}$

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Can you?

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Homework:

Assignment #25

Due the day AFTER the test.

Review for Test 6

Test NEXT time!