**Dividing with Imaginary & Complex Numbers**

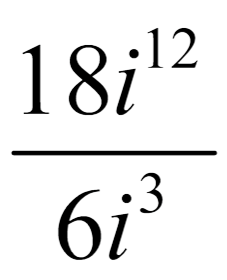
**Rules:**

\*No i's in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*Make sure i's are in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form…meaning nothing is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ than “\_\_\_\_”

We saw in Keeper # 4, that sometimes the “i” in the denominator eliminates itself simply by subtracting exponents.

**Ex. # 1: Simplify completely.**



But what happens when there are no other “i’s” in the problem to do that? We must \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

to eliminate the “i.”

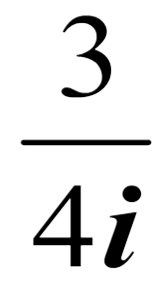
**Steps to Rationalizing the Denominator:**

1.) Simplify the “\_\_\_\_\_\_\_” completely

2.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by “i”

3.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the fraction completely

**Ex. # 2: Simplify completely.**



**Ex. # 3: Simplify completely.**

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**Special Cases:**

When there is a complex number (real number + imaginary number) in the denominator, we must multiply by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in order to rationalize the denominator.

**Complex Conjugates**

(What to multiply by in order to get rid of the "i")

**- 2 + 3i ---> \_\_\_\_\_\_\_\_\_\_\_\_**

**1 - i ---> \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Ex. # 4: Simplify completely.**

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**Ex. # 5: Simplify completely.**

