

ALGEBRA REVIEW 2: OPERATIONS ON COMPLEX NUMBERS

During class we will be building up concepts from like terms to the distributive property to properties of the number i in order to get to a point of performing operations on complex numbers.

A) Perform the following operations on the given terms:

$2x + 6x$

$(2x)(6x)$

$10x - 7x$

$(5x)^2$

$2x + 3x^2 + 9x + 4x^2$

B) Use the distributive property to multiply:

$2(3x + 5)$

$10x(2x - 7)$

$7x(x - 3)$

C) Multiply the binomials using double distribution (FOIL):

$(x + 2)(x + 5)$

$(x + 3)(x + 4)$

$(x + 2)(x - 5)$

$(2x + 3)(5x + 7)$

D) Realizing that to square means to multiply the base times itself, square the following:

$(x + 5)^2$

$(x + 3)^2$

$(x - 4)^2$

$(2x + 3)^2$

Defining i : The number i is equal to $\sqrt{-1}$. Also, $i^2 = -1$ Complex numbers are numbers like $2i$ or $1 + 5i$ or $-7 + 0.5i$ or just i . We will be performing operations on complex numbers in the rest of the sections on this handout.

E) Perform the following operations on the given numbers:

$2i + 6i$

$(2i)(6i)$

$10i - 7i$

$(5i)^2$

$2i + 3i^2 + 9i + 4i^2$

F) Use the distributive property to multiply:

$2(3i + 5)$

$10i(2i - 7)$

$7i(i - 3)$

G) Multiply the complex numbers using double distribution (FOIL):

$(i + 2)(i + 5)$

$(i + 3)(i + 4)$

$(i + 2)(i - 5)$

$(2i + 3)(5i + 7)$

H) Realizing that to square means to multiply the base times itself, square the following:

$(i + 5)^2$

$(i + 3)^2$

$(i - 4)^2$

$(2i + 3)^2$