

### Warm-up

- Solve the following for  $x$ .

$$x^2 - 2x = 3$$

$$2x^2 - 3 = 5$$

Introduction to the imagination!  
Don't forget complexity!

Form real, Imaginary things...  
It is going to get complex...

### We should know this...

- Solve the following for  $x$ .

$$x^2 - 2 = 2$$

$$2x^2 - 3 = 5$$

How many solutions does each equation have?

### But what happens now?

Solve for  $x$ .

$$x^2 + 4 = 0$$

### Imaginary Numbers!

Notes:

$\sqrt{-1} = i$ ,  $i$  means imaginary

What do we do with this  $i$ ?

### We can add/subtract them

- Simplify (Combine Like Terms)

$$2i + 3i + 4 - 6i$$

$$2(12 + i) + (4i - 2)$$

### You Try!

- Simplify (Combine Like Terms)

$$3i + 3 + 6i - 8$$

$$-(3 + i) + (6i - 3)$$

### We can Multiply them

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

$$(2 + 3i)(8 + i)$$

Notes:

## You try!

$$(4 + 2i)(8 - i)$$

$$(6 + 2i)(6 + 3i)$$

## Breaking it all down

- $\sqrt{-1} = \_\_\_\_\_\_$ , which means  $\_\_\_\_\_\_$ .

- $2i + 3$  is called a  $\_\_\_\_\_\_$
- We can  $\_\_\_\_\_\_$ , and  $\_\_\_\_\_\_$ , complex numbers.

## Practice!

$$2 + (2i + 4) + 4i + 2$$

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

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

## Homework

- Worksheet Front is homework.

