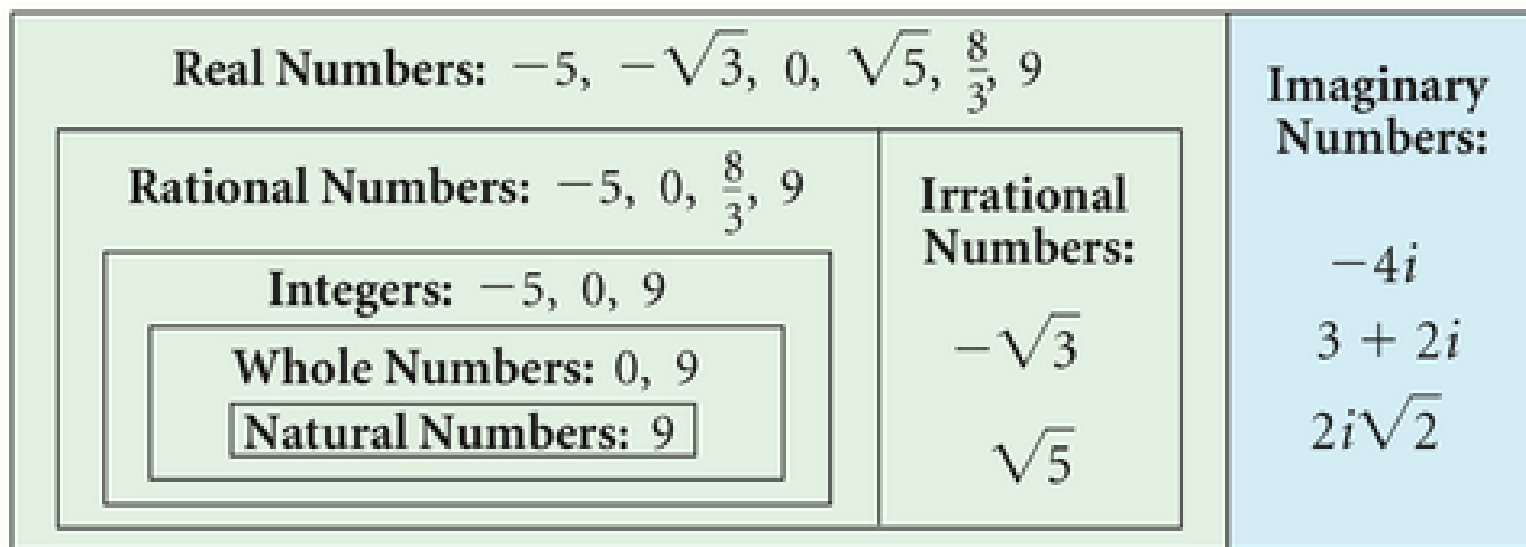


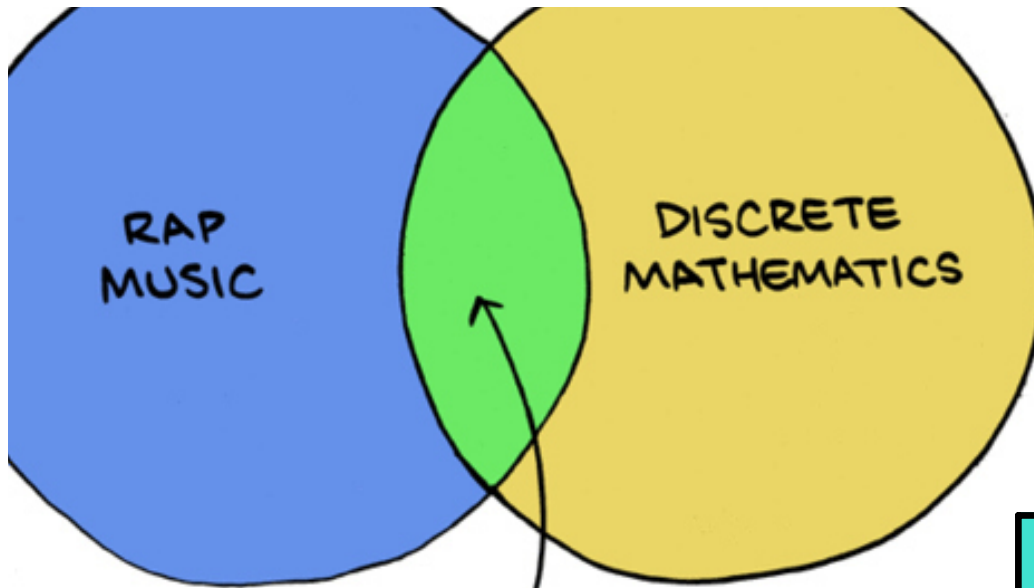
"So if it's imaginary, how can it be used?"

→ In basic terms, complex numbers are useful for calculating problems involving rotation.

Usage of Complex Numbers.doc

Complex Numbers





FREQUENT USE OF THE PHRASE "FOR REALS."

What did i and π say to each other when arguing?



Keep in mind that "i" is not used as a variable, where various values can be substituted in for the letter.

Instead, it is more like π , a symbol that represents a numeric value.

Simplify in terms of i to get commonly used conversions, since i is defined to be $\sqrt{-1}$.

$$i = \sqrt{-1}$$

definition

$$i^2 =$$

$$\sqrt{x} \cdot \sqrt{x} = \sqrt{x^2} = x$$

$$i^3 =$$

memorize

$$i^4 =$$

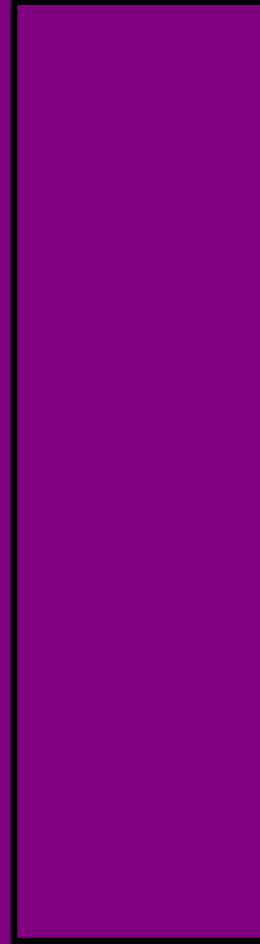


Simplify (use i^4 's).

$$i^5$$

$$i^8$$

$$i^{11}$$



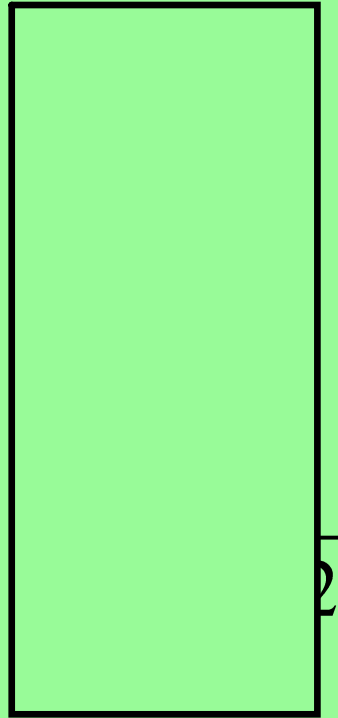
Simplify.

$$\sqrt{-9} = \sqrt{9} \cdot \sqrt{-1} = 3i$$

$$\sqrt{-36}$$

$$\sqrt{-24}$$

$$-2\sqrt{-50}$$



Complex Number

$$a + bi$$

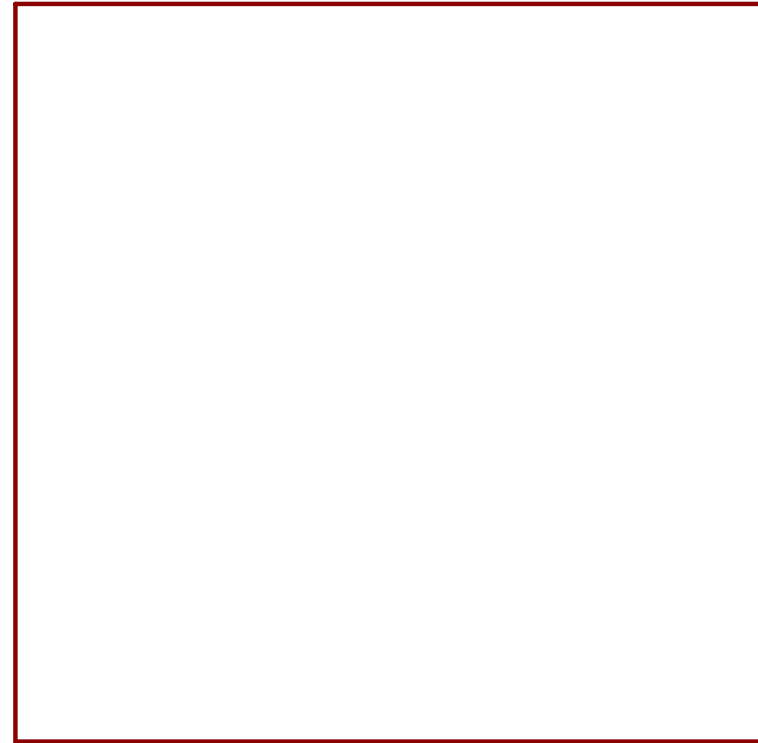
a = real part

b = imaginary part

Sum of Complex Numbers

Teacher's Notes

Solution



Check Your Understanding

1 What is the sum of the complex numbers $1 - i$ and $2 + 5i$?

A $3 + 5i$

B $3 + 6i$

C $3 + 4i$

D $3 - 6i$

Select the correct answer.

4-8 Complex Numbers

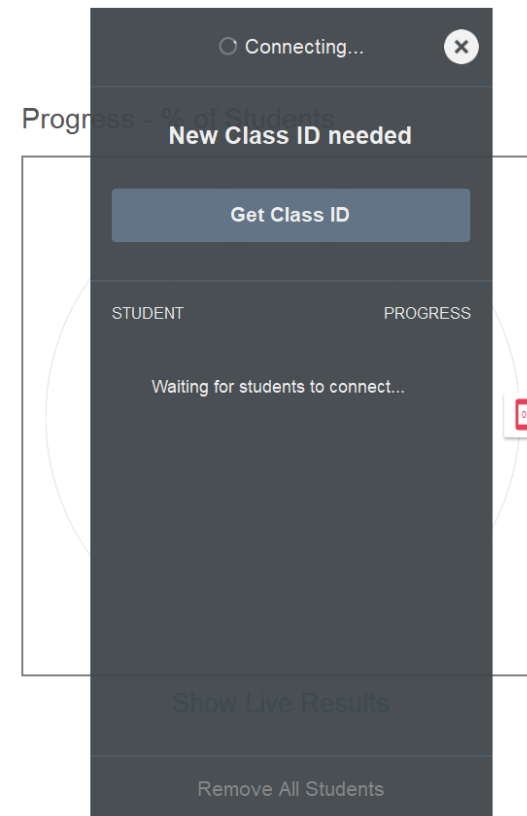
1 What is the sum of the complex numbers $1 - i$ and $2 + 5i$?

A $3 + 5i$

B $3 + 6i$

C $3 + 4i$

D $3 - 6i$



Difference of Complex Numbers

Teacher's Notes

Solution

Product of Complex Numbers

Teacher's Notes

Solution

Check Your Understanding

What is the square of the complex number $3 + 2i$?

A $5 + 12i$

B $5 - 12i$

C $9 - 4i$

D $9 + 4i$



Select the correct answer.

Check Your Understanding

The value of $i + i^2 + i^3 + i^4$ is?

- A 1
- B i
- C $1 + i$
- D 0



Select the correct answer.

Check Your Understanding

What is the sum of the complex numbers $2 + 3i$ and $3 - 2i$?

A $5 + 5i$

B $5 - 5i$

C $5 + i$

D $5 - i$



Select the correct answer.

4-8 Complex Numbers

The image shows a digital classroom interface. On the left, a large dark grey panel displays the text "Waiting to start activity..." at the top left. The main area of this panel features the website name "hellosmart.com" in white, followed by a large white number "501 874". Below the number is an icon of two people and the text "0 Connected Students". On the right, a smaller vertical panel shows the same website name and number at the top. Below this, it says "Ready to start" with a blue "Start" button. Underneath, there are two columns: "STUDENT" and "PROGRESS". The "STUDENT" column contains the text "Waiting for students to connect...". At the bottom of this panel is a "Remove All Students" button. The entire interface is framed by a light grey border with small icons in the top right corner.

Attachments

Usage of Complex Numbers.doc