

Title: Math Tutorial - Part 3

Date: Aug 07, 2006 02:30 PM

URL: <http://pirsa.org/06080013>

Abstract:

Function Notation:

$$y = 2x + 4$$

$$\rightarrow S(x) = 2x + 4$$

$$F = 1.8C$$

Complex numbers

Integers 1, 2, 3, 4...

... -3, -2, -1, 0

$$(x-1) - 1$$

$$1N^2$$



Function Notation:

$$y = 2x + 4$$

$$S(x) = 2x + 4$$

$$F = 1.2$$

Complex numbers

Integers 1, 2, 3, 4...

... -3, -2, -1, 0

$$(x-1)^2 = 1$$

Fractions

$$\frac{4}{5}$$

real number

Function Notation:

$$y = 2x + 4$$

$$S(x) = 2x + 4$$

$$E = 1000$$

$$\pi = 3.1415$$

Complex numbers

Integers 1, 2, 3, 4...

... -3, -2, -1, 0

$\frac{1}{2}, \frac{1}{3}, \dots$
↓
Fractions

real numbers

$\frac{4}{5}, \frac{1}{10}$

Function Notation:

$$y = 2x + 4$$

$$f(x) = 2x + 4$$

$$\sqrt{2} = 1.414...$$

$$e = 2.718...$$

$$\pi = 3.14159...$$

Complex numbers

Integers 1, 2, 3, 4...

... -3, -2, -1, 0

$\mathbb{N}^2$



Fractions

real numbers



$\frac{4}{5}$, $\frac{1}{10}$ etc.

4-7-5

Function Notations

$$y = 2x + 4$$

$$F = 1.5a$$

$$\sqrt{2} = 1.414...$$

$$e = 2.718...$$

$$\pi = 3.14159...$$

Complex numbers

Integers 1, 2, 3, 4...

... -3, -2, -1, 0

$$7N^2$$



Fractions

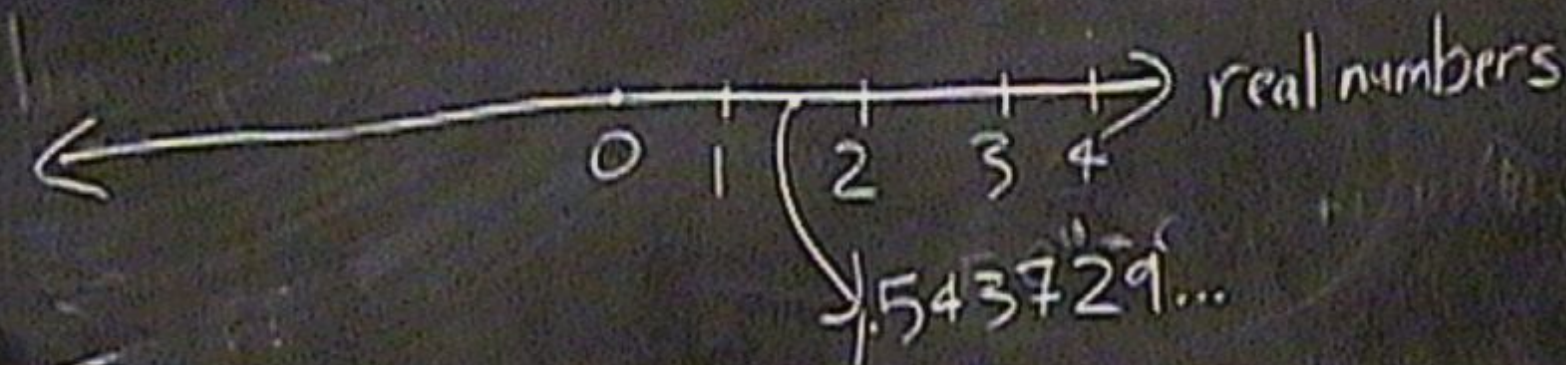
real numbers



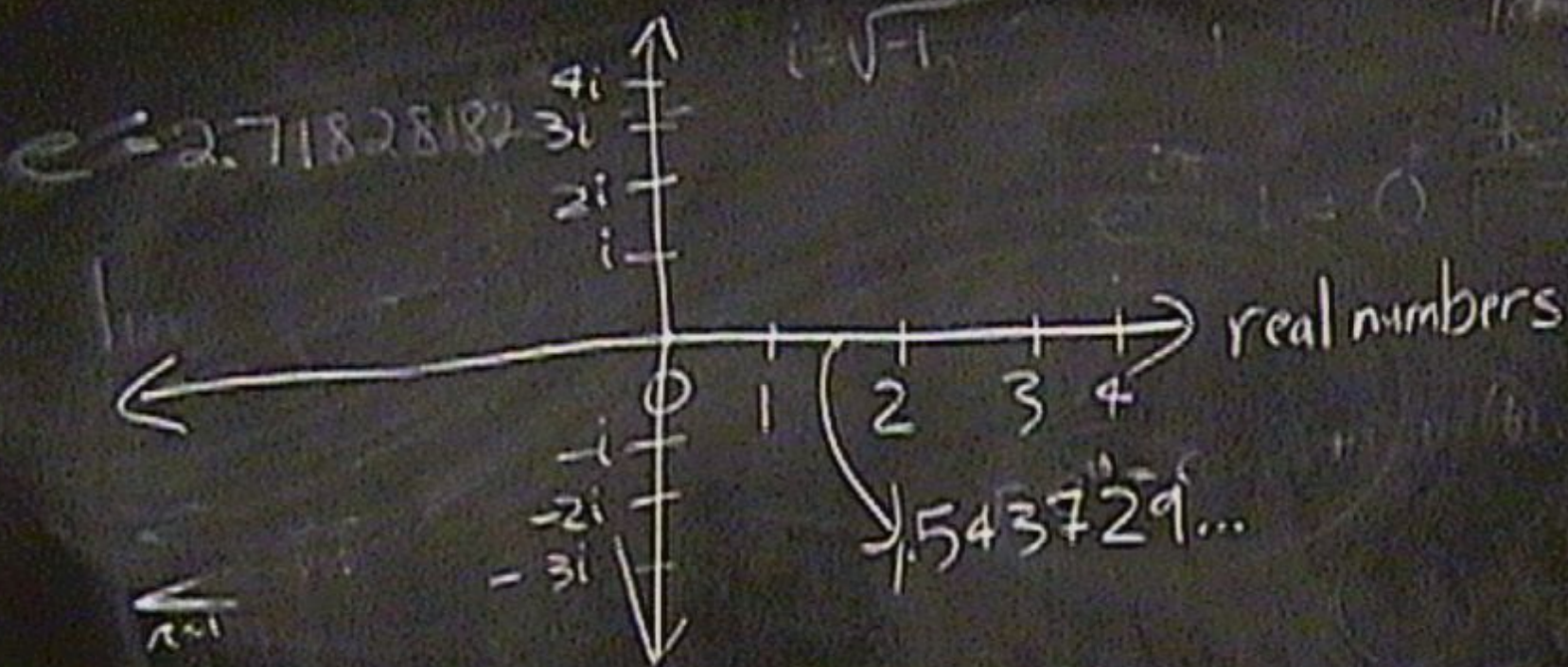
$\frac{4}{5}$, $\frac{1}{10}$ etc.

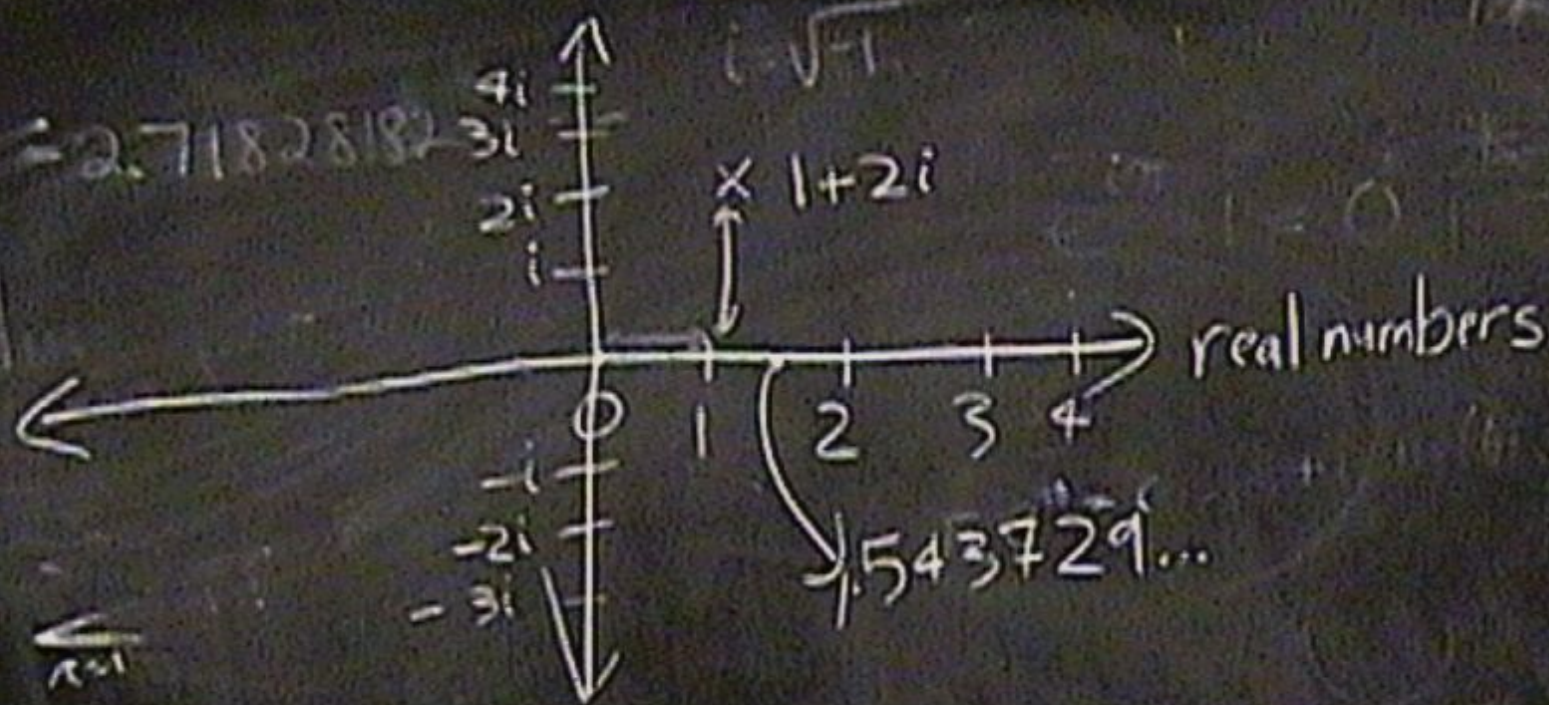
$e = 2.71828182 \dots$

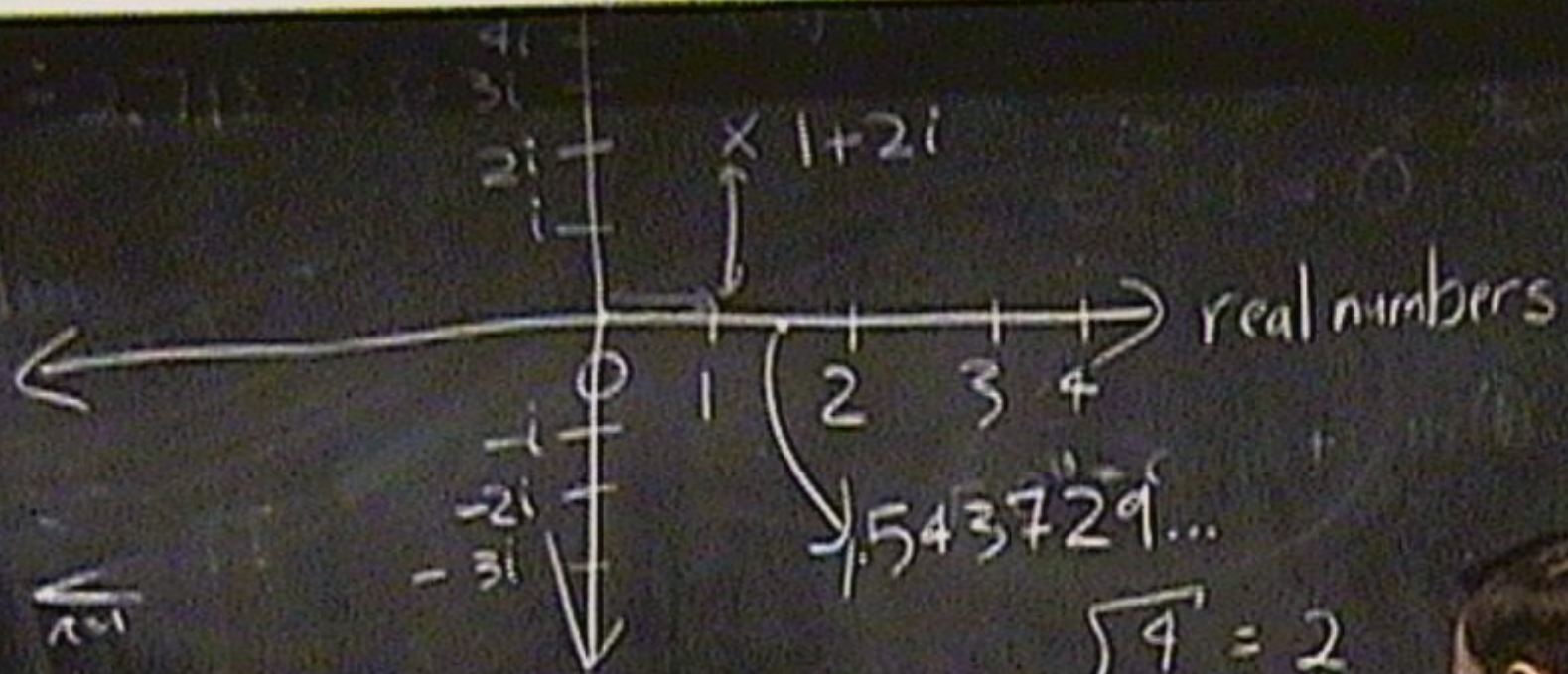
$i = \sqrt{-1}$



$\pi \approx 3.14$



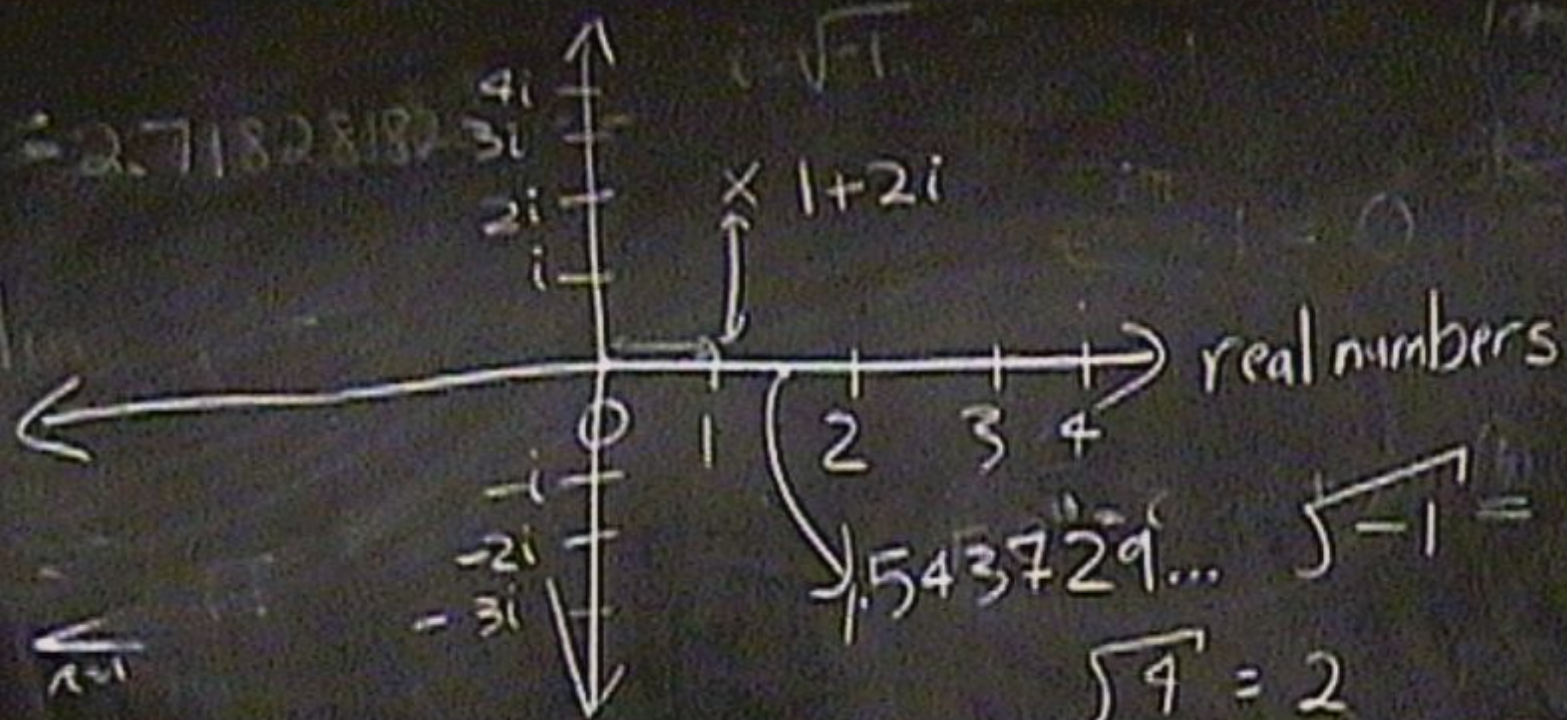




$$\sqrt{4} = 2$$

$$\sqrt{2} = 1+i$$

$$\sqrt{}$$

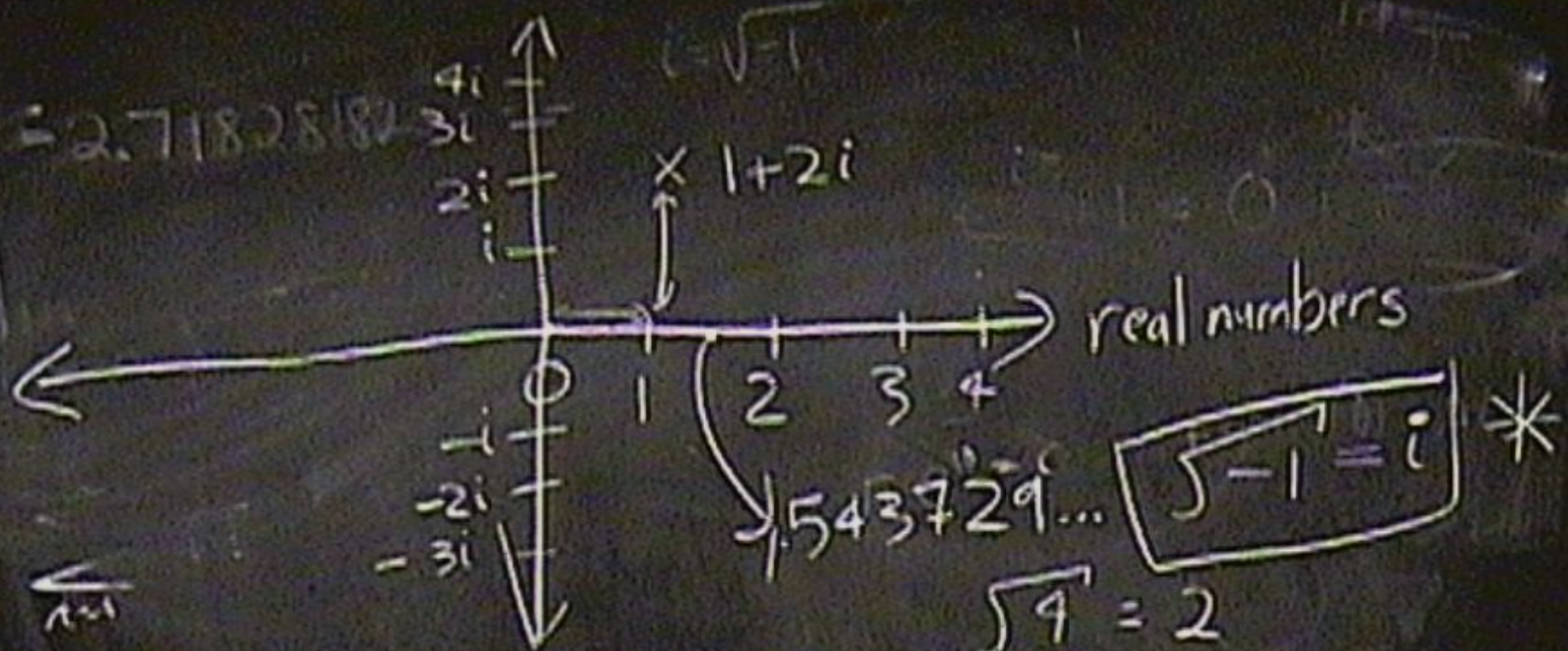


$$\sqrt{-1} =$$

$$\sqrt{4} = 2$$

$$\sqrt{2} = 1.414$$

$$\sqrt{0} = 0$$



$$i^2 = \left(\sqrt{-1}\right)^2 = -1$$

$$i^2 = -1$$

$$i \times (-i) = -(i \times i) = -$$

$$i^2 = (\sqrt{-1})^2 = -1$$

$$\boxed{i^2 = -1}$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

$$\begin{array}{r} 10 \overline{) 43112} \end{array}$$

$$i^2 = (\sqrt{-1})^2 = -1$$



$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

$$\begin{array}{r} 0 \\ 10 \end{array} \begin{array}{r} 45 \\ 112 \end{array}$$

$$i^2 = \left(\sqrt{-1}\right)^2 = -1$$

$$\boxed{i^2 = -1}$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

imaginary number

CP

10⁴³ Hz

$$i^2 = (\sqrt{-1})^2 = -1$$

$$\boxed{i^2 = -1}$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

imaginary number

Complex number $u = a + bi$

10^{43} Hz

$$i^2 = (\sqrt{-1})^2 = -1$$

$$i^2 = -1$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

Imaginary number

Complex number

$$u = a + bi$$

$$a = +1$$

$$b = +2$$

u

$$i^2 = (\sqrt{-1})^2 = -1$$

$$i^2 = -1$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

imaginary number

Complex number

$$u = a + bi$$

$$a = +1$$

$$b = +2$$

$$u = 1 + 2i$$

$$i^2 = (\sqrt{-1})^2 = -1$$

$$i^2 = -1$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

Imaginary number

Complex number $\rightarrow$

$$u = \underbrace{a}_{\text{Real component}} + \underbrace{bi}_{\text{Imaginary component}} = 1 + 2i$$

$a = 1$
 $b = +2$

$$i^2 = (\sqrt{-1})^2 = -1$$

$$i^2 = -1$$

$$i \times (-i) = -(i \times i) = -i^2 = -(-1) = +1$$

imaginary number

Complex number $\rightarrow u = \underbrace{a}_{\text{RE}} + \underbrace{bi}_{\text{IM}}$

Real component (RE) Imaginary component (IM)

$a=1$ $b=+2$

$u = 1 + 2i$

Function Notation:

$$y = 2x + 4$$

$$\sqrt{2} = 1.414...$$

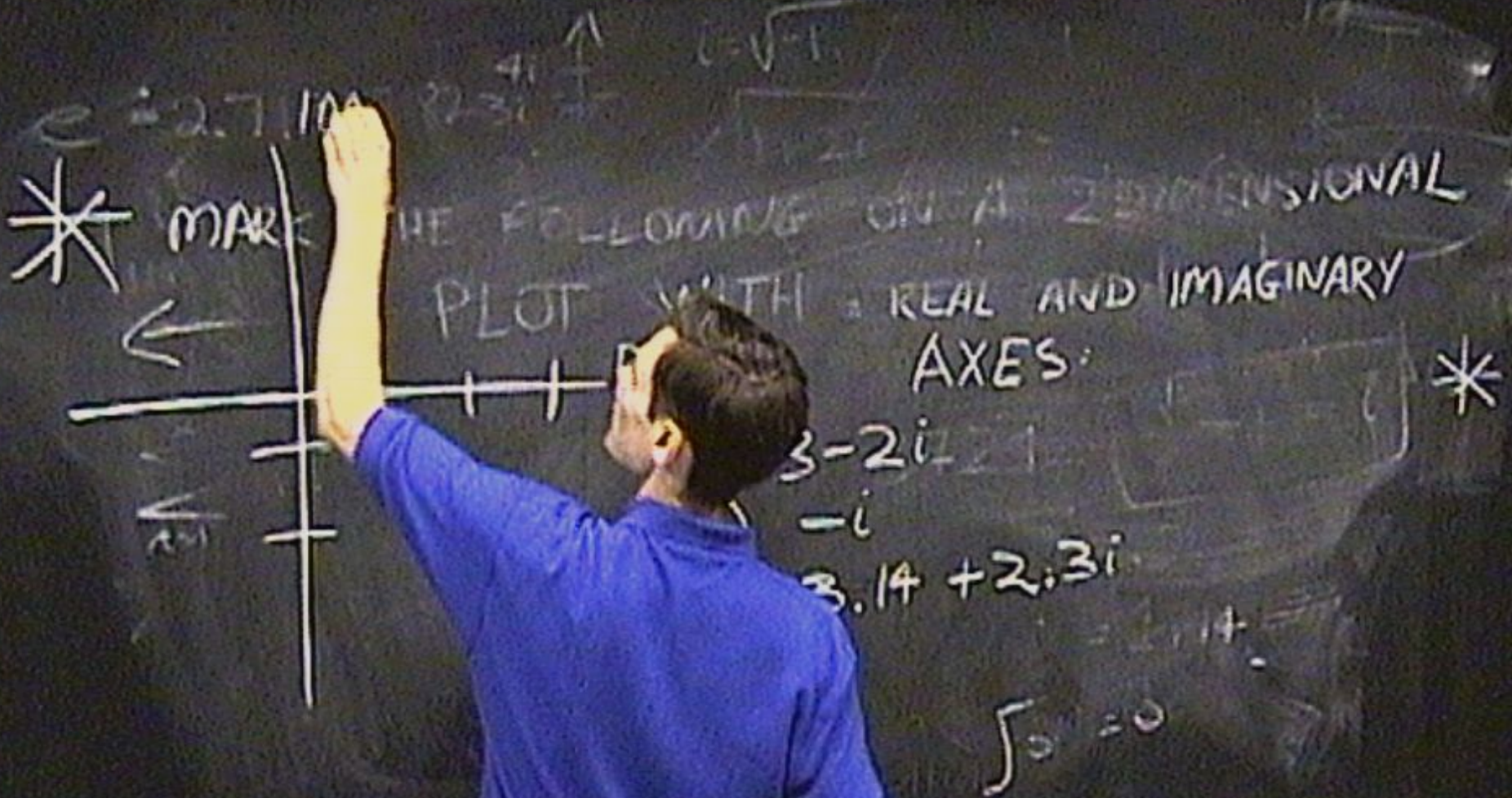
4/5

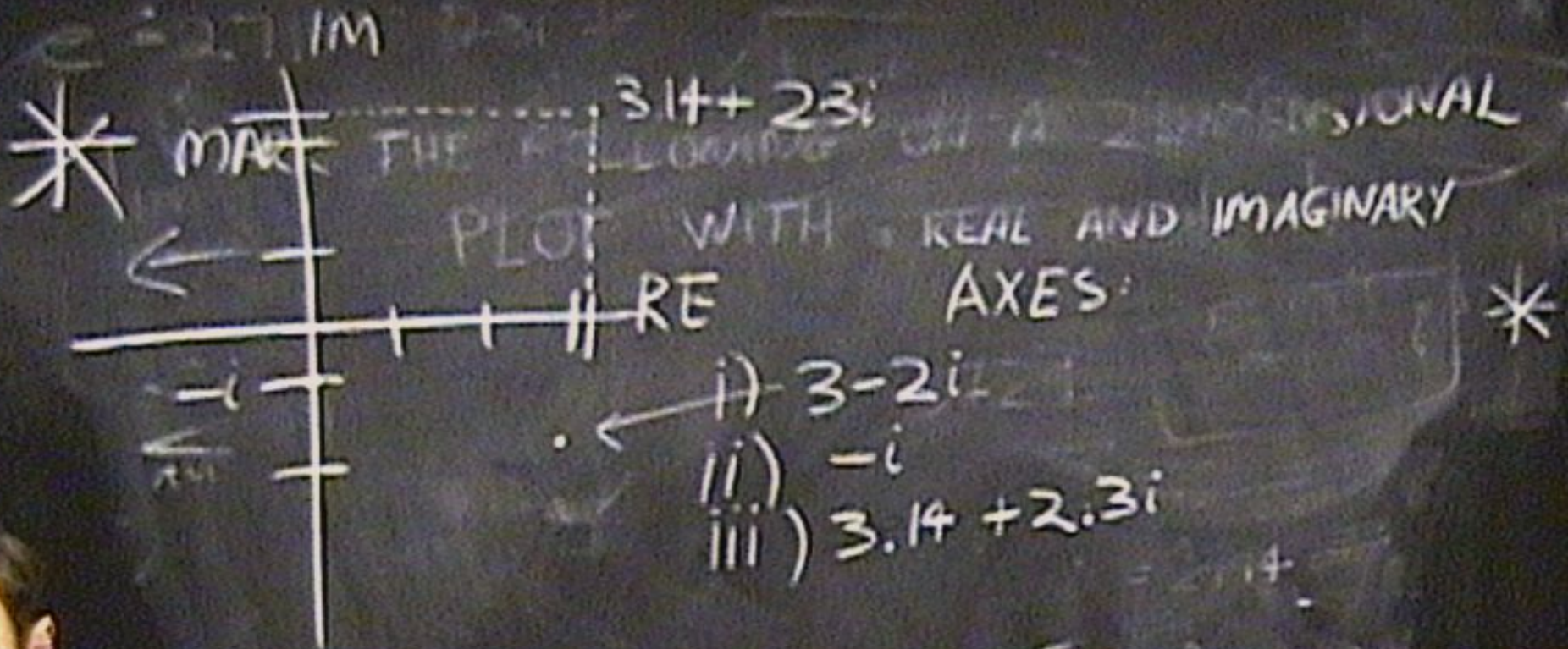
1. Calculate $-i \times i$

2. Calculate i^3

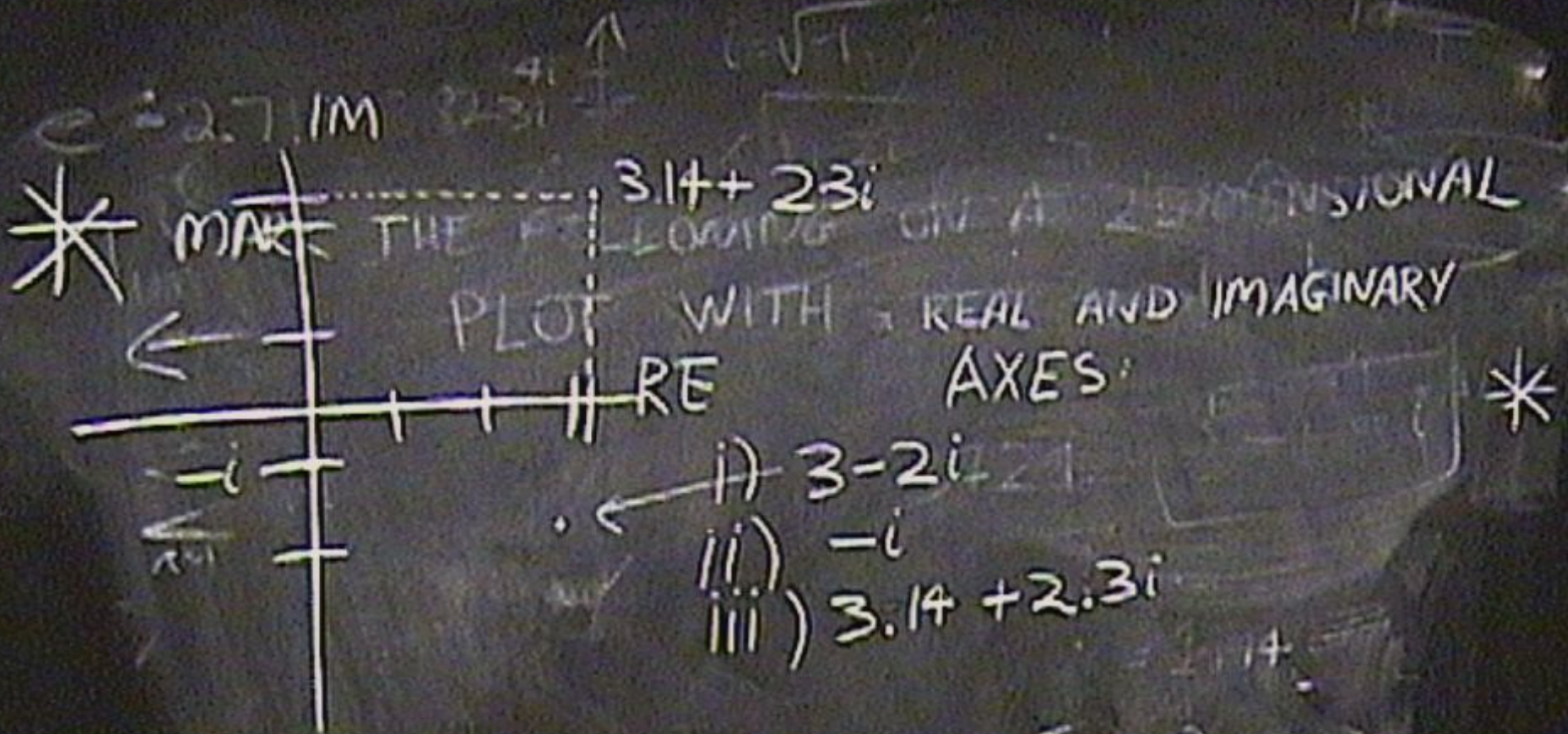
3. Calculate $\sqrt{-1} \times (-i)^2$

$$9N^2$$





$$\int_0^{\infty} = 0$$



$$\int_0 = 0$$