

$$1) (2 + 3i) - (4 - 3i)$$
$$(2 + 3i) + (-4 + 3i)$$
$$\boxed{-2 + 6i}$$

$$2) (2 + 3i)(4 - 3i)$$
$$8 - 6i + 12i - 9i^2$$
$$8 + 6i - 9i^2$$
$$8 + 6i - 9(-1)$$
$$8 + 6i + 9$$
$$\boxed{17 + 6i}$$

Product Rule $\frac{X^m \cdot X^n}{X^m \cdot X^n} = X^{m+n}$

Ex: $X^2 \cdot X^3 = X^{2+3} = X^5$

Quotient $\frac{X^m}{X^n} = X^{m-n}$

Power Ex: $\frac{X^3}{X^2} = X^{3-2} = X$

$$(X^m)^n = X^{m \cdot n}$$

$$(X^2)^3 = X^{2 \cdot 3} = X^6$$

Convert Exponent to Radicals

$$x^{\frac{1}{4}} = \sqrt[4]{x} \quad \text{and} \quad x^{\frac{3}{4}} = \sqrt[4]{x^3}$$

Denominator replaces Index

Numerator remains as power

$$\sqrt[5]{x^2} = x^{\frac{2}{5}}$$

Day 2 - Complex Numbers

$$i^2 = -1$$

Variable

Convert i^2 to -1

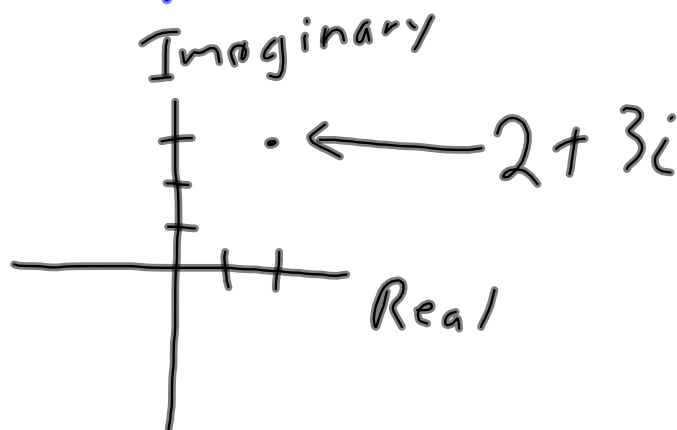
$$2 + 3i$$

↑
Real
↑
Imaginary

$$\sqrt{x^2 - x}$$

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

What is $\sqrt{-1} = \sqrt{i^2} = i$



Day 4 - Solving Radicals

#1: Isolate the Radical $\sqrt{x} + 3 = 7$

#2: Get Rid of Radical Sign $\frac{-3 \quad -3}{\sqrt{x} = 4}$

#3: Index Finish Solving Eq. $(\sqrt{x})^2 = 4^2$

Try $\sqrt{x+3} - 12 = 4$ $x = 16$

$\frac{+12 \quad +12}{(\sqrt{x+3})^2 = (16)^2}$ $3\sqrt[3]{x-2} + 5 = 29$

$x+3 = 256$

$x = 253$

$8^3 = 512$

$3\sqrt[3]{x-2} + 5 = 29$

$\frac{-5 \quad -5}{3\sqrt[3]{x-2} = 24}$

$\frac{3 \quad 3}{(\sqrt[3]{x-2})^3 = (8)^3} \rightarrow 8 \times 8 \times 8 = 512$

$x-2 = 512$

$\frac{+2 \quad +2}{x = 514}$

Using calculator for $\sqrt[3]{216}$

3 2nd $\sqrt{\quad}$ 216 =

(Note: A blue handwritten symbol $\sqrt[3]{\quad}$ is drawn above the $\sqrt{\quad}$ button)

Word Problems

2 consecutive Numbers

• The first number is X 5, 6• The second number is X+1 8, 9

2 consecutive Even numbers

First number is ^{or}
X OddSecond number is X+2

$$2 + 2 \Rightarrow 4$$

$$7 + 2 \Rightarrow 9$$

I have 2 consecutive odd numbers that add up to 28.

Write out the equation

What are the 2 numbers.

$$\boxed{X + X + 2 = 28}$$

$$2x + 2 = 28$$

$$\begin{array}{r} -2 \quad -2 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{26}{2}$$

1st Number

$$\boxed{x = 13}$$

2nd Number = 15