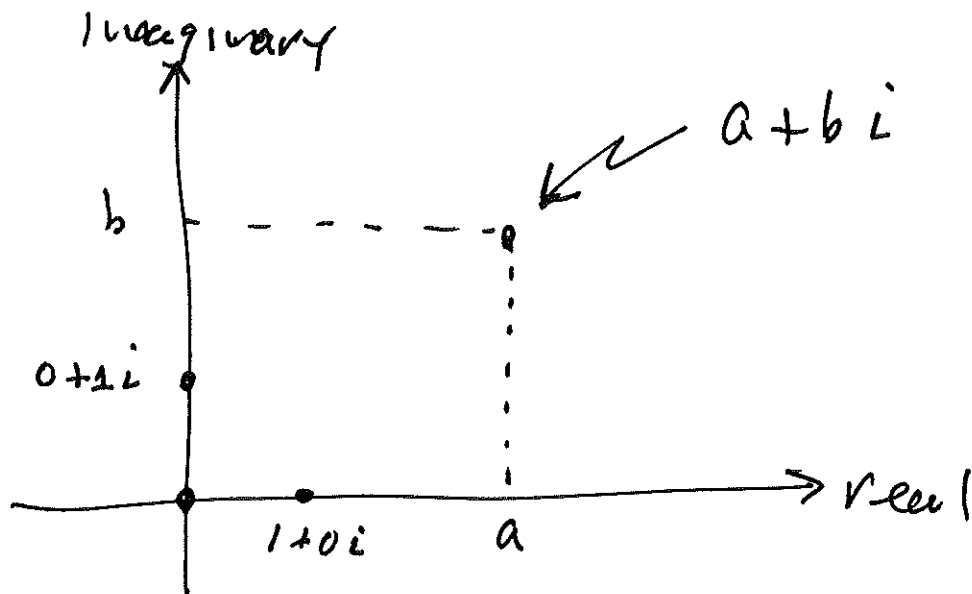


Ex. Complex. Java

a complex number is a number of the form $a + bi$ where $a, b \in \mathbb{R}$ and $i^2 = -1$



Complex addition :

$$(a+bi) + (c+di) = (a+c) + (b+d)i$$

Complex subtraction :

$$(a+bi) - (c+di) = (a-c) + (b-d)i$$

Complex multiplication :

$$\begin{aligned}(a+bi) \cdot (c+di) &= ac + bci + adi + bdi^2 \\ &= (ac - bd) + (bc + ad)i\end{aligned}$$

Complex add (Complex z) {

return new Complex (this.re + z.re,
this.im + z.im);

}

Complex sub (Complex z) {

Complex w = new Complex (this.re - z.re,
this.im - z.im);

return w;

}

Complex mult (Complex z) {

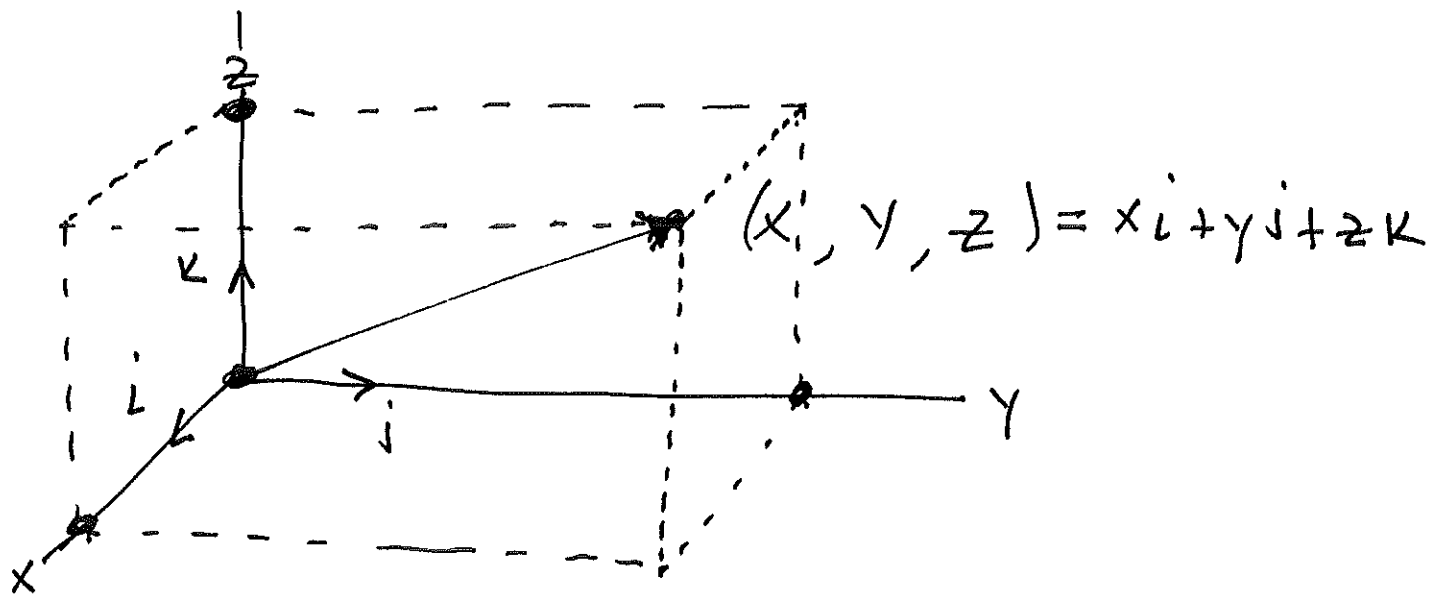
double x = this.re * z.re
- this.im * z.im ;

double y = this.im * z.re
+ this.re * z.im ;

return new Complex(x, y);

}

Ex. Vector.java



public boolean equals (Object A) {

Vector v = (Vector) A;

return this.x == v.x &&

this.y == v.y &&

this.z == v.z ;

}

#4

function Shuffle()

$$a = (n \% 2 == 0) ? (n/2) : ((n/2) + 1);$$

$$b = n/2;$$

$$a = 4$$

$$b = 3$$

	0	1	2	3	4	5	6
A	one	two	three	four	five	six	seven

	0	1	2	3
L	one	two	three	four

	0	1	2
R	five	six	seven

	0	1	2	3	4	5	6
A	one	five	two	six	three	seven	four