

Java divides the into the following groups:

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Bitwise operators

Arithmetic Operators

Arithmetic operators are used to perform common mathematical operations.

Operator	Name	Description	Example	Try it
+	Addition	Adds together two values	x + y	<a href="#">Try it »</a>
-	Subtraction	Subtracts one value from another	x - y	<a href="#">Try it »</a>
*	Multiplication	Multiplies two values	x * y	<a href="#">Try it »</a>
/	Division	Divides one value by another	x / y	<a href="#">Try it »</a>
%	Modulus	Returns the division remainder	x % y	<a href="#">Try it »</a>
++	Increment	Increases the value of a variable by 1	++x	<a href="#">Try it »</a>
--	Decrement	Decreases the value of a variable by 1	--x	<a href="#">Try it »</a>

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Java Assignment Operators

Assignment operators are used to assign values to variables.

In the example below, we use the **assignment** operator (=) to assign the value **10** to a variable called **x**:

Example

```
int x = 10;
```

[Try it Yourself »](#)

The **addition assignment** operator (+=) adds a value to a variable:

Example

```
int x = 10; x += 5;
```

[Try it Yourself »](#)

A list of all assignment operators:

Operator	Example	Same As	Try it
=	x = 5	x = 5	<a href="#">Try it »</a>
+=	x += 3	x = x + 3	<a href="#">Try it »</a>
-=	x -= 3	x = x - 3	<a href="#">Try it »</a>
*=	x *= 3	x = x * 3	<a href="#">Try it »</a>
/=	x /= 3	x = x / 3	<a href="#">Try it »</a>
%=	x %= 3	x = x % 3	<a href="#">Try it »</a>
&=	x &= 3	x = x & 3	<a href="#">Try it »</a>
=	x  = 3	x = x   3	<a href="#">Try it »</a>
^=	x ^= 3	x = x ^ 3	<a href="#">Try it »</a>
>>=	x >>= 3	x = x >> 3	<a href="#">Try it »</a>
<<=	x <<= 3	x = x << 3	<a href="#">Try it »</a>

$int x = 5$   
 $x = \text{Ram}$   
 $int x = 5$   
 $int x = 5$

Java Comparison Operators

Comparison operators are used to compare two values:

Operator	Name	Example	Try it
==	Equal to	x == y	<a href="#">Try it »</a>
!=	Not equal	x != y	<a href="#">Try it »</a>
>	Greater than	x > y	<a href="#">Try it »</a>
<	Less than	x < y	<a href="#">Try it »</a>
>=	Greater than or equal to	x >= y	<a href="#">Try it »</a>
<=	Less than or equal to	x <= y	<a href="#">Try it »</a>

Java Logical Operators

Logical operators are used to determine the logic between variables or values:

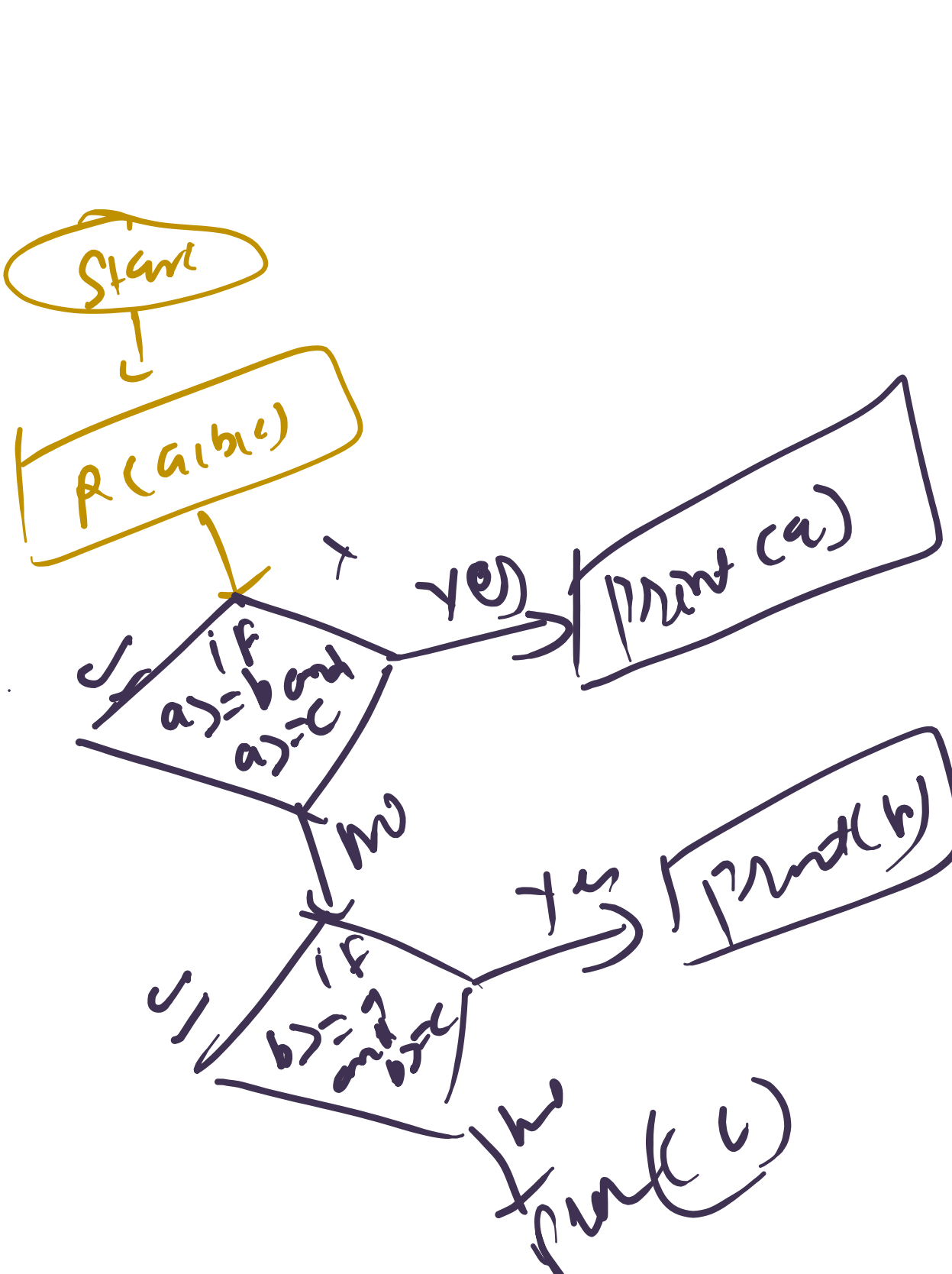
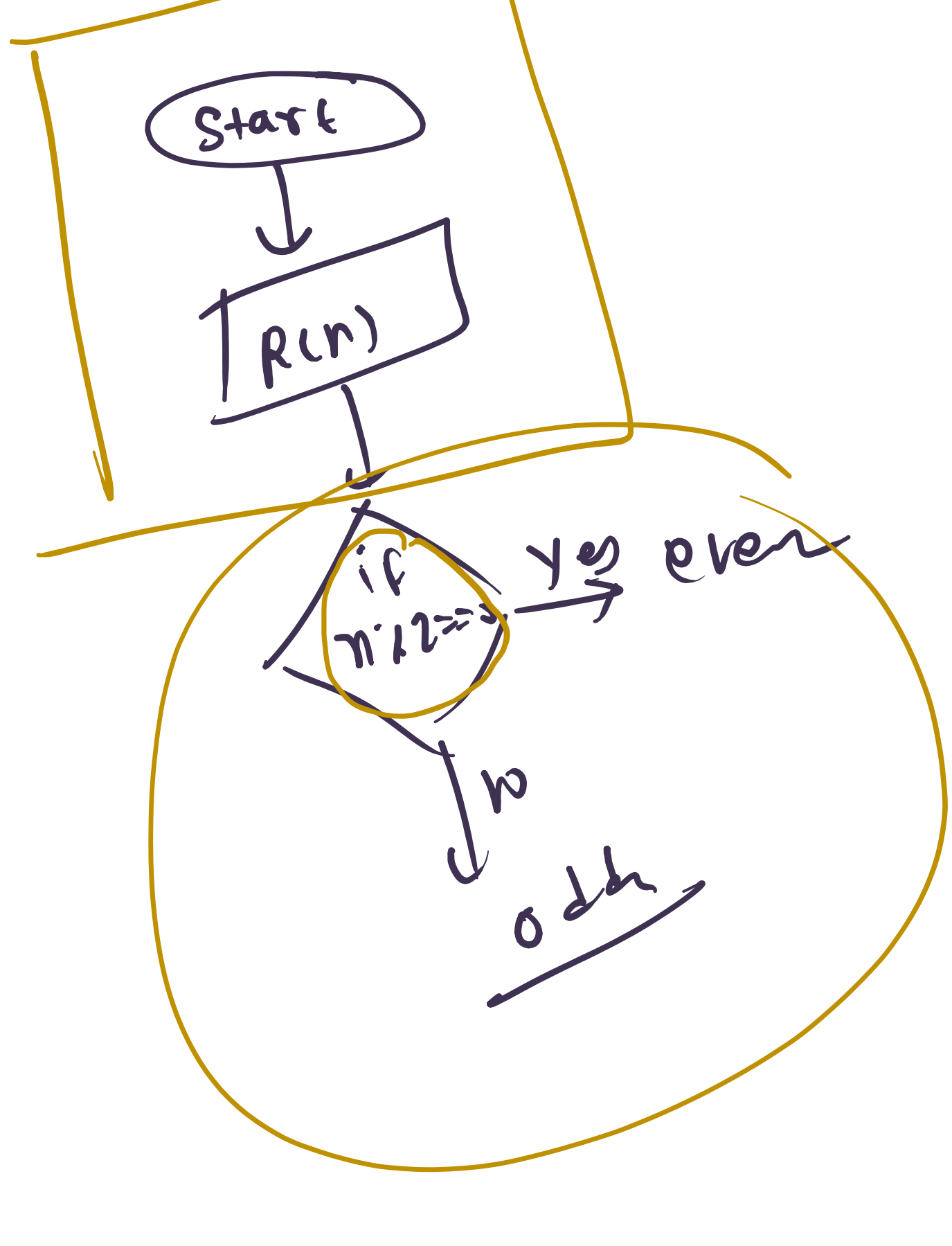
Operator	Name	Description	Example	Try it
&&	Logical and	Returns true if both statements are true	x < 5 && x < 10	<a href="#">Try it »</a>
	Logical or	Returns true if one of the statements is true	x < 5    x < 4	<a href="#">Try it »</a>
!	Logical not	Reverse the result, returns false if the result is true		

$!(T) = F$   
 $!(F) = T$

a	b	a & b
T	T	T
T	F	F
F	T	F
F	F	F

a	b	a    b
T	T	T
T	F	T
F	T	T
F	F	F

$P = 1000$   
 $T = 5$   
 $T = 1$



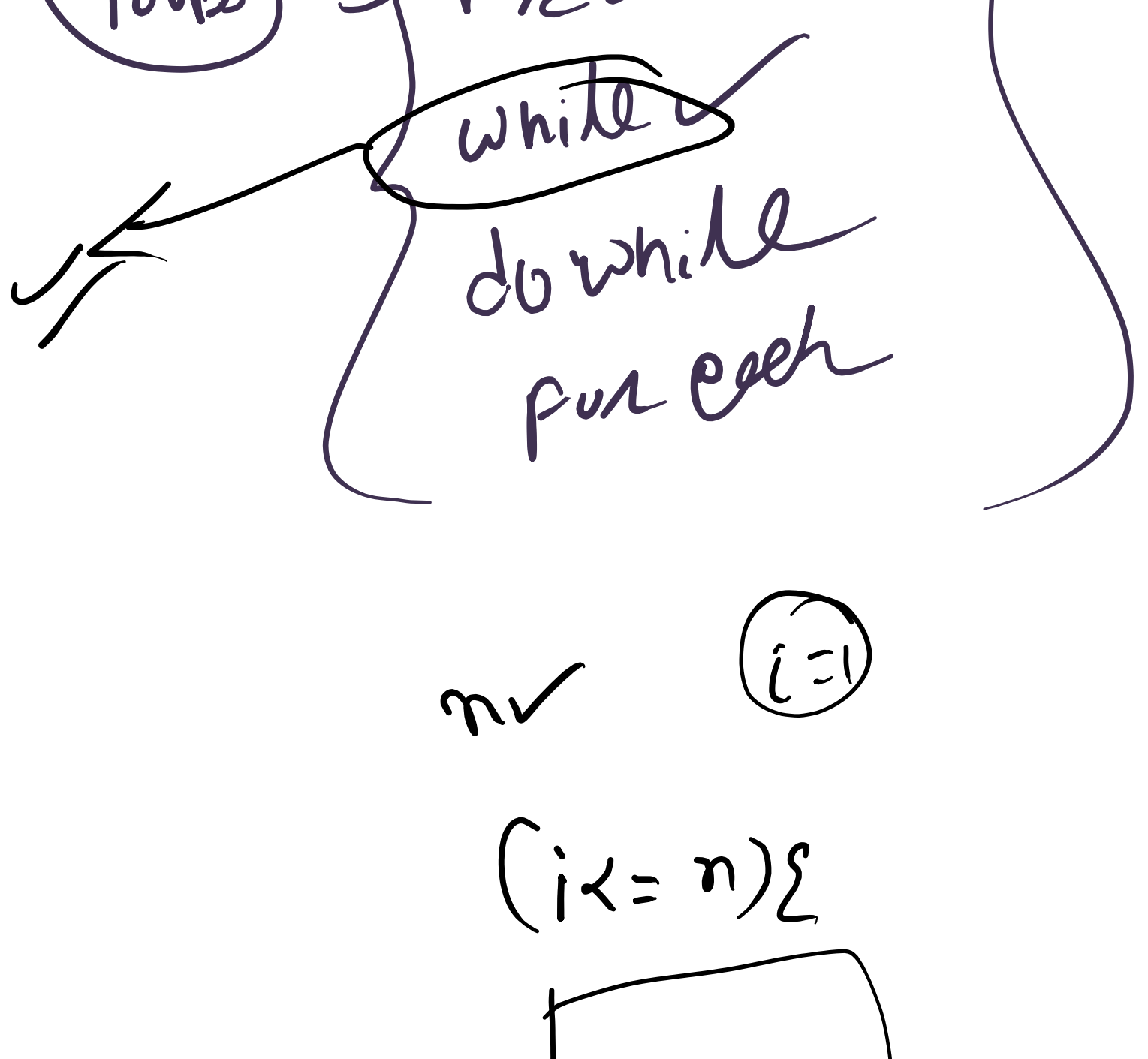
m → [100 to 350] → Bike → 100 to 289 → Hero, KTM  
[450, to 585] → Mac → 450 to 519 → m1 mac, m2 mac  
[51 to 99] → cycle → 51 to 79 → LALUAD, Avon  
[642 to 755] → car → 642 to 700 → THAK, Omer  
[ ] → Still happy birthday

```
int a = x++ - ++x - --x + x++ - x++;  
6 - 8 - 7 + 7 - 8  
6 - 16 = -10
```

x = 8 7 8 7 8 9

```
int a = --x + --x - ++x + x++ - x++;  
5 + 4 - 5 - 6  
9 - 6 = 3
```

x = 8 8 8 8 8 2



$(i <= n)$   
 $i = i + 1$

```
int i = 1;  
while (i <= n) {  
    // self work  
    System.out.println(i);  
    i++;  
}
```

n = 5  
i = 1 → 1 <= 5  
i = 2 → 2 <= 5  
i = 3 → 3 <= 5  
i = 4 → 4 <= 5  
i = 5 → 5 <= 5  
i = 6 → 6 <= 5 (false)  
1  
2  
3  
4  
5