Operators

Operators in Java
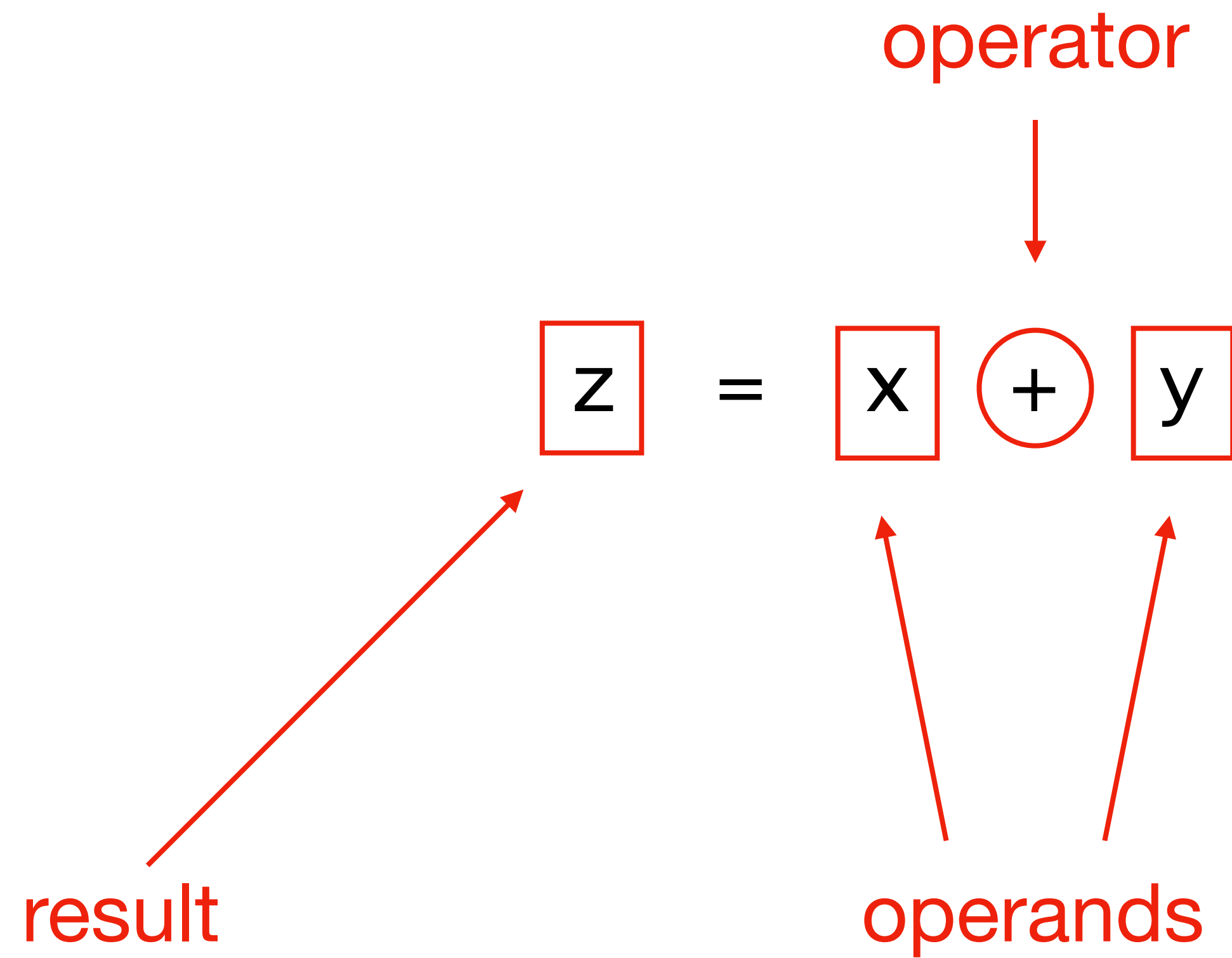
Operation

operator

$$z = x \oplus y$$

result

operands

Three kinds of operators in Java

1. Unary operator

   ```
   a++;
   ```

2. Binary operator

   ```
   a = b + c;
   ```

3. Ternary operator

   ```
   a = (b>0) ? 3 : 2;
   ```

Operator precedence

Operator	Example(s)	Order of
Post-unary operator	`a++, a--`	Left-to-right
Pre-unary operator	`++a, --a`	Left-to-right
Other unary operators	`-, !, ~, +, (type)`	Right-to-left
Cast	`(Type)a`	Left-to-right
Multiplication/division/modulus	`*, /, %`	Left-to-right
Addition/substraction	`+, -`	Left-to-right
Shift operators	`<<, >>, >>>`	Left-to-right
Relational operators	`<, >, <=, >=, instanceof`	Left-to-right
Equal to/not equal to	`==, !=`	Left-to-right
Logical AND	`&`	Left-to-right
Logical exclusive OR (XOR)	`^`	Left-to-right
Logical exclusive OR (XOR)	`|`	Left-to-right
Conditional AND	`&&`	Left-to-right
Conditional OR	`||`	Left-to-right
Ternary operators	`expr ? a : b`	Right-to-left
Assignment operators	`=, +=, -=, *=, /=, %=, &=, |=, <<=, >>=, >>>=`	Right-to-left
Arrow operator	`->`	Right-to-left

```
int a = 2+2*2+10/5+1;

=> a = 2 + (2*2) + (10/5) + 1

=> a = 9


boolean b = 2>1&&2+2*2==5;

=> b = (2 > 1) && ((2 + (2*2)) == 5)

=> b = true && (6 == 5) = true && false = false


int x = 1;

int y = ++x*2;

=> y = (++x) * 2;

=> y = 4, x = 2
```