

# Intro to Java Programming

## Calculating with Numbers

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June 24, 2022

# Outline

Calculating with Numbers

# Topic

Calculating with Numbers

# Precedence and Parenthesis

Parenthesis are an easy way to control flow of operations

## Code

```
1 int calculationWithParens = (1 + 1) + 3 * (2 + 5);  
2 System.out.println(calculationWithParens);  
3  
4 int calculationWithoutParens = 1 + 1 + 3 * 2 + 5;  
5 System.out.println(calculationWithoutParens);
```

23

13

## Results

# Programming Exercise - Seconds in a day

## Part01 16.SecondsInADay

In the exercise template, implement a program that asks the user for the number of days. After that, the program prints the number of seconds in the given number of days.

### Code

```
1 import java.util.Scanner;
2
3 public class SecondsInADay {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
```

## Desired Output

How many days would you  
like to convert to  
seconds?

1  
86400

Results

## Desired Output

How many days would you  
like to convert to  
seconds?

3  
259200

Results

# Expressions and Statements

```
int calculationWithoutParentheses = 1 + 1 + 3 * 2 + 5;
```

```
double value = Double.valueOf(scanner.nextLine());
```

# Performing Math in Print statements

## Code

```
1 String sampleString = "The answer to everything is " + 42;  
2 System.out.println(sampleString);
```

```
The answer to everything is 42
```

## Results

## Performing Math in Print statements

### Code

```
1 String sampleString = "The answer to everything is " + 42;  
2 System.out.println(sampleString);
```

```
The answer to everything is 42
```

### Results

### Code

```
1 System.out.println("Four: " + (2 + 2));  
2 System.out.println("But! Twenty-two: " + 2 + 2);
```

```
Four: 4  
But! Twenty-two: 22
```

### Results



# Programming Exercise - Sum of Two Numbers

## Part01\_17.SumOfTwoNumbers

Write a program that asks the user for two numbers. After this, the program prints the sum of the numbers given by the user. When you ask for multiple numbers, create a separate variable for each:

### Code

```
1 import java.util.Scanner;
2
3 public class SumOfTwoNumbers {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
```

## Desired Output

```
Give the first number:
8
Give the second number:
3
The sum of the numbers is
11
```

### Results

# Programming Exercise - Sum of three numbers

## Part01\_19.SumofThreeNumbers

Write a program that asks the user for three numbers. After this the program prints the sum of the numbers given by the user.

### Code

```
1 import java.util.Scanner;
2
3 public class SumOfThreeNumbers {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
```

## Desired Output

```
Give the first number:
8
Give the second number:
3
Give the third number:
3
The sum of the numbers is
14
```

### Results

# Programming Exercise - Addition formula

## Part01\_19.AdditionFormula

Create a program that can be used to add two integers together. In the beginning, the user is asked to give two integers that are to be summed. The program then prints the formula that describes the addition of the numbers.

## Desired Output

Give the first number:

5

Give the second number:

4

5 + 4 = 9

Results

### Code

```
1 import java.util.Scanner;
2
3 public class AdditionFormula {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // write your program here
9
10    }
11 }
```

# Programming Exercise - Multiplication Formula

## Part01\_20.MultiplicationFormula

Similar to the previous exercise, create a program that

multiplies the values stored in two integer variables.

### Code

```
1 import java.util.Scanner;
2
3 public class MultiplicationFormula {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
12
```

## Desired Output

Give the first number:

2

Give the second number:

8

2 \* 8 = 16

### Results

# Division

## Integer dividend and divisor result in integer quotients

Integer divided by integer results in an integer

### Code

```
1 int result = 3 / 2;  
2 System.out.println(result);
```

1

Results

### Code

```
1 int dividend = 2;  
2 int divisor = 3;  
3 double quotient = divisor / dividend;  
4 System.out.println(quotient);
```

1.0

Results

## Narrative

Division of integers is slightly trickier. If all the variables in the division expression are integers, then the resulting value will be an

# Greater Division Accuracy

A double results in greater precision

Code

```
1 double dividend = 2.0;  
2 int divisor = 3;  
3 double quotient = divisor / dividend;  
4 System.out.println(quotient);
```

1.5

Results

# Casting

## Code

```
1 int divisor = 3;
2 int dividend = 2;
3
4 double result1 = (double) divisor / dividend;
5 System.out.println(result1);
6 double result2 = divisor / (double) dividend;
7 System.out.println(result2);
8 double result3 = (double) (divisor /
↵ dividend);
9 System.out.println(result3);
```

```
1.5
1.5
1.0
```

## Results

## Code

```
1 int dividend = 3;
2 int divisor = 2;
3
4 double result = 1.0 * dividend / divisor;
5 System.out.println(result);
```

```
1.5
```

## Results

## Code

```
1 int dividend = 3;
2 int divisor = 2;
3
4 double result = dividend / divisor * 1.0;
5 System.out.println(result);
```

```
1.0
```

## Results

# Programming Exercise - Average of Two Numbers

## Part01\_21.AverageOfTwoNumbers

Write a program that asks the user for two integers and prints

their average.

### Code

```
1 import java.util.Scanner;
2
3 public class AverageOfTwoNumbers {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
12
```

## Desired Output

```
Give the first number:
8
Give the second number:
2
The average is 5.0
```

### Results



# Programming Exercise - Average of Three Numbers

## Part01\_22.AverageofThreeNumbers

Write a program that asks the user for three integers and

prints their average.

### Code

```
1 import java.util.Scanner;
2
3 public class AverageOfThreeNumbers {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
12
```

## Desired Output

```
Give the first number:
8
Give the second number:
2
Give the third number:
3
The average is
4.333333333333333
```

### Results

# Programming Exercise - Simple Calculator

## Part01\_23.SimpleCalculator

Write a program that asks the user for two numbers and prints their sum, difference, product, and quotient. Two examples of the execution of the program are given below.

### Code

```
1 import java.util.Scanner;
2
3 public class SimpleCalculator {
4
5     public static void main(String[] args) {
6         Scanner scanner = new Scanner(System.in);
7
8         // Write your program here
9
10    }
11 }
```

## Desired Output

Give the first number:

8

Give the second number:

2

8 + 2 = 10

8 - 2 = 6

8 \* 2 = 16

8 / 2 = 4.0

### Results