Java arithmetic operators

**Exercise 1: Write Java program to allow the user to input two integer values and then the program prints the results of adding, subtracting, multiplying, and dividing among the two values.**

See the example below:

Enter value a:30

Enter value b:10

The result of adding is 40.

The result of subtracting is 20;

The result of multiplying is 300.

The result of dividing is 3.

## Java compound operators

**Exercise 1:** Write Java program to allow the user to input two float values and then the program adds the two values together. The result will be assigned to the first variable.

Enter value a:12.5

The value of a before adding is 12.5.

Enter value b:34.9

The value of a after adding is 47.4.

**Exercise 2:** Write Java program to allow the user to input the amount of deposit, yearly interest rate (percentage), and income tax(percentage). Then the program will calculate the amount of interest that the person earns in the year. See the example output below:

The amount of deposit: 1000

Yearly interest rate: 7.5%

Income tax rate: 4%

The amount of interest earned in the year:71.0

## Java if else

**Exercise 1:** Write Java program to allow the user to input his/her age. Then the program will show if the person is eligible to vote. A person who is eligible to vote must be older than or equal to 18 years old.

Enter your age: 18

You are eligible to vote.

if else and logical operators

**Exercise 1: Write a Java program that determines a student’s grade.**

The program will read three types of scores(quiz, mid-term, and final scores) and determine the grade based on the following rules:  
-if the average score >=90% =>grade=A  
-if the average score >= 70% and <90% => grade=B  
-if the average score>=50% and <70% =>grade=C  
-if the average score<50% =>grade=F

See the example output below:

Quiz score: 80

Mid-term score: 68

Final score: 90

Your grade is B.

**Exercise 2: Write a Java program to calculate the revenue from a sale based on the unit price and quantity of a product input by the user.**

The discount rate is 10% for the quantity purchased between 100 and 120 units, and 15% for the quantity purchased greater than 120 units. If the quantity purchased is less than 100 units, the discount rate is 0%. See the example output as shown below:

Enter unit price: 25

Enter quantity: 110

The revenue from sale: 2475.0$

After discount: 275.0$(10.0%)

Java switch case

**Exercise 1: Write a Java program to detect key presses.**

If the user pressed number keys( from 0 to 9), the program will tell the number that is pressed,  otherwise, program will show "Not allowed".

**Exercise 2: Write a Java program that allows the user to choose the correct answer of a question.**

See the example below:  
What is the correct way to declare a variable to store an integer value in Java?  
a. int 1x=10;  
b. int x=10;  
c. float x=10.0f;  
d. string x="10";  
Enter your choice: c

1. Write a Java program to calculate the modules of two numbers without using any inbuilt modulus operator.  
   Test data:  
   Input the first number : 5  
   Input the second number: 3  
   2  
   Input the first number : 19  
   Input the second number: 7  
   5
2. Write a Java program to compute the sum of the first 100 prime numbers.
3. Write a Java program to get a number from the user and print whether it is positive or negative.

*Test Data*  
Input number: 35  
*Expected Output* :  
Number is positive

**2.** Write a Java program to solve quadratic equations (use if, else if and else).

*Test Data*  
Input a: 1   
Input b: 5   
Input c: 1  
*Expected Output* :  
The roots are -0.20871215252208009 and -4.7912878474779195 

**3.**Take three numbers from the user and print the greatest number.

*Test Data*  
Input the 1st number: 25   
Input the 2nd number: 78   
Input the 3rd number: 87  
*Expected Output* :  
The greatest: 87

**4.** Write a Java program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0.

*Test Data*  
Input a number: 25   
*Expected Output* :  
The value of m = 25.0  
The value of n = 1

**5.** Write a Java program that keeps a number from the user and generates an integer between 1 and 7 and displays the name of the weekday.

*Test Data*  
Input number: 3   
*Expected Output* :  
Wednesday

**6.** Write a Java program that reads in two floating-point numbers and tests whether they are the same up to three decimal places.

*Test Data*  
Input floating-point number: 1256  
Input floating-point another number: 3254  
*Expected Output* :  
They are different

**7.** Write a Java program to find the number of days in a month.

*Test Data*  
Input a month number: 2  
Input a year: 2016  
*Expected Output* :  
February 2016 has 29 days

**8.** Write a Java program that takes the user to provide a single character from the alphabet. Print Vowel or Consonant, depending on the user input. If the user input is not a letter (between a and z or A and Z), or is a string of length > 1, print an error message.

*Test Data*  
Input an alphabet: p  
*Expected Output* :  
Input letter is Consonant

**9.** Write a Java program that takes a year from user and print whether that year is a leap year or not.

*Test Data*  
Input the year: 2016  
*Expected Output* :  
2016 is a leap year

**10.** Write a program in Java to display the first 10 natural numbers.

*Expected Output* :

The first 10 natural numbers are:

1

2

3

4

5

6

7

8

9

10

**11.** Write a program in Java to display n terms of natural numbers and their sum.

*Test Data*  
Input the number: 2  
*Expected Output* :

Input number:

2

The first n natural numbers are :

2

1

2

The Sum of Natural Number upto n terms :

23

[.](https://www.w3resource.com/java-exercises/conditional-statement/java-conditional-statement-exercise-11.php)

**12.** Write a program in Java to input 5 numbers from keyboard and find their sum and average.

*Test Data*  
Input the 5 numbers : 1 2 3 4 5   
*Expected Output* :

Input the 5 numbers :

1

2

3

4

5

The sum of 5 no is : 15

The Average is : 3.0

**13.** Write a program in Java to display the cube of the number upto given an integer.

*Test Data*  
Input number of terms : 4  
*Expected Output* :

Number is : 1 and cube of 1 is : 1

Number is : 2 and cube of 2 is : 8

Number is : 3 and cube of 3 is : 27

Number is : 4 and cube of 4 is : 64

**14.** Write a program in Java to display the multiplication table of a given integer.

*Test Data*  
Input the number (Table to be calculated) : Input number of terms : 5  
*Expected Output* :

5 X 0 = 0

5 X 1 = 5

5 X 2 = 10

5 X 3 = 15

5 X 4 = 20

5 X 5 = 25

**15.** Write a program in Java to display the n terms of odd natural number and their sum.

*Test Data*  
Input number of terms is: 5   
*Expected Output* :

The odd numbers are :

1

3

5

7

9

The Sum of odd Natural Number upto 5 terms is: 25

**16.** Write a program in Java to display the pattern like right angle triangle with a number.

*Test Data*  
Input number of rows : 10   
*Expected Output* :

1

12

123

1234

12345

123456

1234567

12345678

123456789

12345678910

**17.** Write a program in Java to make such a pattern like right angle triangle with a number which will repeat a number in a row.The pattern is as follows :

1

22

333

4444

**18.** Write a program in Java to make such a pattern like right angle triangle with number increased by 1.The pattern like :

1

2 3

4 5 6

7 8 9 10

**19.** Write a program in Java to make such a pattern like a pyramid with a number which will repeat the number in the same row.

1

2 2

3 3 3

4 4 4 4

**20.** Write a program in Java to print the Floyd's Triangle.

*Test Data*  
Input number of rows : 5   
*Expected Output* :

1

01

101

0101

10101

**21.** Write a program in Java to display the pattern like a diamond.

*Test Data*  
Input number of rows (half of the diamond) : 7   
*Expected Output* :

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**22.**Write a Java program to display Pascal's triangle.

*Test Data*  
Input number of rows: 5   
*Expected Output* :

Input number of rows: 5

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

**23.**Write a java program to generate a following \*'s triangle.

*Test Data*  
Input the number: 6   
*Expected Output* :

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**24.**Write a java program to generate a following @'s triangle.

*Test Data*  
Input the number: 6   
*Expected Output* :

@

@@

@@@

@@@@

@@@@@

@@@@@@

**25.**Write a Java program to display the number rhombus structure.

*Test Data*  
Input the number: 7   
*Expected Output* :

1

212

32123

4321234

543212345

65432123456

7654321234567

65432123456

543212345

4321234

32123

212

1

**26.**Write a Java program to display the following character rhombus structure.

*Test Data*  
Input the number: 7   
*Expected Output* :

A

ABA

ABCBA

ABCDCBA

ABCDEDCBA

ABCDEFEDCBA

ABCDEFGFEDCBA

ABCDEFEDCBA

ABCDEDCBA

ABCDCBA

ABCBA

ABA

A

**27.**Write a Java program that reads an integer and check whether it is negative, zero, or positive.

*Test Data*  
Input a number: 7   
*Expected Output* :

Number is positive

**28.**Write a Java program that reads a floating-point number. If the number is zero it prints "zero", otherwise, print "positive" or "negative". Add "small" if the absolute value of the number is less than 1, or "large" if it exceeds 1,000,000.

*Test Data*  
Input a number: -2534   
*Expected Output* :

Negative

**29.**Write a Java program that reads an positive integer and count the number of digits the number (less than ten billion) has.

*Test Data*  
Input an integer number less than ten billion: 125463  
*Expected Output* :

Number of digits in the number: 6

**30.**Write a Java program that accepts three numbers and prints "All numbers are equal" if all three numbers are equal, "All numbers are different" if all three numbers are different and "Neither all are equal or different" otherwise.

*Test Data*  
Input first number: 2564  
Input second number: 3526   
Input third number: 2456  
*Expected Output* :

All numbers are different

**31.**Write a program that accepts three numbers from the user and prints "increasing" if the numbers are in increasing order, "decreasing" if the numbers are in decreasing order, and "Neither increasing or decreasing order" otherwise.

*Test Data*  
Input first number: 1524   
Input second number: 2345  
Input third number: 3321  
*Expected Output* :

Increasing order

**32.**Write a Java program that accepts two floating­point numbers and checks whether they are the same up to two decimal places.

*Test Data*  
Input first floating­point number: 1235  
Input second floating­point number: 2534   
*Expected Output* :

These numbers are different.