

Math and Java



Types of values in Java

- boolean (true/false)
- char ('a', 'b', 'c', etc.)
- int (-2×10^9 to $+2 \times 10^9$)
- double (-1.8×10^{308} to $+1.8 \times 10^{308}$)

Math Operators in Java

Java Operator	Operation
+	Addition
-	Subtraction
*	Multiplication
/	Division (When dividing integers, round down)
%	Remainder (i.e. $m \% n$ gives the remainder after m is divided by n)

□ Evaluate the following using Java

1. 15/3
2. 9/2
3. 9.0/2
4. 9/2.0
5. 7 % 3
6. 12 % 15
7. -20 % 7
8. (int)5.7
9. (int)5.7 + 5
10. (int)5.7 + 5.0
11. (double)5
12. (double)(5+6)

13. Given int n=5;
 - n+2.1
 - n++
 - n--
 - ++n
 - --n

Math Methods

Math Method	Operation
Math.abs (x)	Determines the absolute value of an expression.
Math.sqrt (x)	Returns the positive square root
Math.pow (x, y)	Emulates x^y

Other Math methods

Math Method	Operation
Math.max (x, y)	Returns the larger of two arguments
Math.min (x, y)	Returns the smaller of two Arguments
Math.round (x)	Rounds a floating point value to nearest integer
Math.ceil (x)	Returns a double rounded up
Math.floor (x)	Returns a double rounded down

Try these examples

- ❑ `Math.abs(-4)`
- ❑ `Math.sqrt(25)`
- ❑ `Math.pow(2,10)`
- ❑ `Math.pow(10,2)`

Try these examples

- ❑ `Math.max(3, -5);`
- ❑ `Math.min(8,7);`
- ❑ `Math.round(2.13);`
- ❑ `Math.ceil(18.2);`
- ❑ `Math.floor(8.9);`

Rounding to a decimal place

```
double place=10;  
    //the decimal place for rounding e.g. 10 is to 1 decimal  
    place, 100 is to 2 decimal places  
double unrounded=1.52123;  
    //number to be rounded  
double result;  
    //rounded number to be determined  
  
result = Math.round(unrounded*place)/place;  
    //store rounded number in result  
  
System.out.println(result); // output the result
```