

Quest 4

100 EXP

CPSC121 SI

Rex: Welcome Back Programmer.

Rex: Craig is out today, but I am more than qualified to teach today's lesson!

Rex: We will be going over operators today. The five operators are:

Addition: +

Subtraction: -

Multiplication: *

Division: /

Modulus: %

Rex: Of the five I just listed, you should be familiar with the first four, but what is modulus?

Rex: Modulus gives you the remainder. So... $5 \% 3$ will give you 2. Pretty simple stuff.

Rex: As straight forward as all these operators are, computer science puts a twist on some of these operators that you may not be aware of.

Rex: Let's start with addition, subtraction, and multiplication. These three operators work exactly the same way as they normally do. The important thing to take note of is if you add, subtract, or multiply an int with a double, the result will automatically change to double.

Rex: This is important because if you try to store the result(type double) into an int, the value will get truncated and you will lose all the data after the decimal point!

Rex: Division does the same when you divide an int by a double, or double by an int. Your result is a double.

Rex: The important note on division is when you divide an int by an int, you get an int. Seems obvious?

Rex: This creates a problem because it will say $5 / 2$ is 2. This is because $5/2 = 2.5$, but since the result is supposed to be an int, 2.5 gets truncated to 2.

Rex: Finally we get to modulus!

Rex: The important note for modulus is that it only works with int!

Rex: That's right! Integers only, no decimal points. Any doubles or floats will give an error. So when using modulus, remember $(\text{int}) \% (\text{int}) = (\text{int})$.

Rex: I almost forgot! Just like math, computers follow an order of operations.

Rex: The order is as follows:

1. Parenthesis
2. Unary Negation(negative sign)
3. Multiplication, division, modulus (left to right)
4. Addition, subtraction(left to right)

Rex: That's the end of the lesson. Please be aware of the order of operations because the computer will always follow them.

Rex: I guess it's time to test you.

Rex: Here are a bunch of expressions, please find all the results (If a result is a double, use a 2 decimal point precision). If an error occurs, please note that the expression is invalid.

$$9 + 2 =$$

$$6 - 3.0 =$$

$$3 - 2 * 3 =$$

$$3.0 * 3.0 =$$

$$3.5 * 2 =$$

$$3.5 * (2.0 / 4) =$$

$$9 / 4 =$$

$$5.0 / 2 =$$

$$6.0 / 2.0 =$$

$$6 \% 3 =$$

$$14 \% 6 + 1 =$$

$$5 \% 2.5 =$$

$$2 \% 3 * 6 =$$