Operators Associativity and Precedence

1. Use operator associativity, evaluate the folowing expressions and predict the output
a. x = 34 + 12/4 – 56
b. 12 + 3 - 4 / 2 < 3 + 1
c. (2 + (3 + 2)) * 10
d. 34 + 12/4 – 45

Sol:

Expression a: x = 34 + 12 / 4 - 56 → x = -19

Expression b: 12 + 3 - 4 / 2 < 3 + 1 → false (0)

Expression c: (2 + (3 + 2)) * 10 → 70

Expression d: 34 + 12 / 4 - 45 → -8

2. Rewrite the following expressions with improved readability
a. age < 18 && height < 48 || age > 60 && height > 72
b. char name value
c. char $name

Sol:

a. if ((age < 18 && height < 48) || (age > 60 && height > 72)) {

}

b. char name = value;

c. char name_with_dollar;

3. Predict the value of a after each statement.

```
int main(void)
{
int i = 10;
char a = 'd';
a += 10;
a *= 5;
a /= 4;
a %= 2;
a *= a + i;
return 0;
}
```

Sol:

- Initial value of a: 100 (ASCII value of 'd')
- After a += 10: 110
- After a *= 5: 550
- After a /= 4: 137
- After a %= 2: 1
- After a *= a + i: 11

Final value of a = 11.

4. Consider a = 12, b = 3, predict the output of the following .
a. (a>100) && (b<10)
b. (a==4) && (b==2)
c. (a==11) && (a++)

Sol:

Expression a: false (or 0)

Expression b: false (or 0)

Expression c: false (or 0)

5. Consider a = 10, b = 11, predict the output of the following .
a. (a>10) || (b<10)
b. a || 12.12
c. a || b
d. !(a > 5)

Sol:

Expression a: false (or 0)

Expression b: true (or 1)

Expression c: true (or 1)

Expression d: false (or 0)

6. Consider int age = 10, height = 45, year = 2000; Predict the output of the following.
a. (age < 12 && height < 48) || (age > 65 && height > 72)
b. (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0);

Sol:

Expression a: true (or 1)

Expression b: true (or 1)