

Intro to C++

Session 3 homework Q/A

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exercises

■ EXERCISES

Exercise 1

What values do the following arithmetic expressions have?

- a. $3/10$
- b. $11\%4$
- c. $15/2.0$
- d. $3 + 4 \% 5$
- e. $3 * 7 \% 4$
- f. $7 \% 4 * 3$

Exercise 2

a. How are operands and operators in the following expression associated?

```
x = -4 * i++ - 6 % 4;
```

Insert parentheses to form equivalent expressions.

b. What value will be assigned in part a to the variable `x` if the variable `i` has a value of `-2`?

Exercise 3

The `int` variable `x` contains the number `7`. Calculate the value of the following logical expressions:

- a. `x < 10 && x >= -1`
- b. `!x && x >= 3`
- c. `x++ == 8 || x == 7`

Exercise 4

What screen output does the below program generate?

```
// Evaluating operands in logical expressions. #include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    cout << boolalpha; // Outputs boolean values
```

```
    // as true or false
```

```
    bool res = false;
```

```
    int y = 5;
```

```
    res = 7 || (y = 0);
```

```
    cout << "Result of (7 || (y = 0)): " << res  
        << endl;
```

```
    cout << "Value of y: " << y << endl;
```

```
    int a, b, c;
```

```
    a = b = c = 0;
```

```
    res = ++a || ++b && ++c;
```

```
    cout << '\n'
```

```
        << " res = " << res
```

```
        << ",    a = " << a
```

```
        << ",    b = " << b
```

```
        << ",    c = " << c << endl;
```

```
    a = b = c = 0;
```

```
    res = ++a && ++b || ++c;
```

```
    cout << " res = " << res
```

```
        << ",    a = " << a
```

```
        << ",    b = " << b
```

```
        << ",    c = " << c << endl;
```

```
    return 0;
```

```
}
```

■ SOLUTIONS

Exercise 1

- a. 0 b. 3 c. 7.5
- d. 7 e. 1 f. 9

Exercise 2

- a. `x = (((-4) * (i++)) - (6 % 4))`
- b. The value 6 will be assigned to the variable `x`.

Exercise 3

- a. `true`
- b. `false`
- c. `false`

Exercise 4

Result of `(7 || (y = 0))`: `true`
Value of `y`: 5

```
res = true,   a = 1,   b = 0,   c = 0
res = true,   a = 1,   b = 1,   c = 0
```