

COP 2535: Data Structures

Quiz 02

Instructions

Answer the following questions in writing. These are short answer questions. Upload your answers in Canvas as plain text. Please include your name in the text.

1. What header file must be included in a program to use `cin`?
2. Where does `cin` read its input from?
3. What do each of the following expressions evaluate to?

```
6+3*5
12/2-4
9+14*2-6
5+19%3-1
(6+2)*3
14/(11-4)
9+12*(8-3)
(6-17)%2-1
(9-3)*(6+9)/3
```

4. Assume the following definitions:

```
int a = 5, b = 12;
double x = 3.4, z = 9.1;
```

What values do the following expressions have?

```
b / a
x * a
static_cast<double>(b / a)
static_cast<double>(b) / a
b / static_cast<double>(a)
static_cast<double>(b) / static_cast<double>(a)
b / static_cast<int>(x)
static_cast<int>(x) * static_cast<int>(z)
static_cast<int>(x * z)
static_cast<double>(static_cast<int>(x) * static_cast<int>(z))
```

5. Write statements using the `const` qualifier to create the following named constants:

```
2.71828
5.256e5
3.14159
1.618
1609
```

6. Write statements using combined assignment operators to perform the following:

```
add 8 to x
subtract r from amount
multiply y by 4
divide total by 27
store x in the remainder of x divided by 7
add y * 5 to x
subtract discount * 4 from total
multiply increase by salesRep * 5
divide profit by shares minus 1000
```

7. Write `cout` statements with stream manipulators to do the following:

```
display the number 23.789 in a field of nine spaces with two decimal places
display the number 7.0 in a field of five spaces with three decimal places
display the number 5.789e12 in fixed-point notation
display the number 67 left-justified in a field of seven spaces
```

8. How do you `cin.get()`, and why?

9. If a program contains the definition of `char name[20]`, indicate whether each of the following statements are legal or illegal.

```
cin >> name;
cin.getline(name, 20);
cout << name;
name = "John";
```

10. Write a statement that produces a random number between 1 and 100 and stores it in the variable `myGuess`.