Compsci 255 C++ and Data structures Final

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1a) 4 + 5n – 3n^2

O(n^2)

1b) 100 - n

O(n)

1c) log(n) + 10^3

O(log(n))

2) Write a statement that will display a double-type variable named ratio, and satisfies these conditions?

#include <iostream>

#include<iomanip>

 std::cout << std::setprecision(3) << std::setw(8) << ratio << std::endl;

4a) Which function parameter is the reference parameter?

Variable z and variable b

4b) Which function parameter is the pointer parameter?

Variable y is a pointer

4c) Suppose that the program is compiled and run, and the user enters "1 2 3", as above. What will be the first line of program output after the user's entry? Explain the second value in particular.

1 – 0x61fef8 – 3

The first and second values is the integer values the second value is the address of the value 2.

4d) What will be the second line of program output, from the main() function? Explain the first value in particular.

0 – 2 – 3

The first variable is zero because is not a reference or pointer parameter in the function so it does not reassign the variable in the function.

5a) List all of the leaf nodes?

The leaf nodes are h, t, t and h

5b) List the unary operator(s)?

The Unary operators are ftn and lim

5c) Write out the result of printing the nodes in infix order?

(lim( (ftn(t+h) -ftn(h)) / h )

5d) Write out the result of printing the nodes in infix order.

Lim / h -ftn t ftn + h t

Extra Credit) What is the "meaning" of this expression? What mathematical concept does it represent?

This expression is the limit definition of finding the derivate.