**Review Questions for Final Exam**

Binary to hex, hex to binary

|  |  |  |
| --- | --- | --- |
| **DECIMAL** | **HEXADECIMAL**  **(HEX)** | **BINARY** |
| 0 | 0 | 0000 |
| 1 | 1 | 0001 |
| 2 | 2 | 0010 |
| 3 | 3 | 0011 |
| 4 | 4 | 0100 |
| 5 | 5 | 0101 |
| 6 | 6 | 0110 |
| 7 | 7 | 0111 |
| 8 | 8 | 1000 |
| 9 | 9 | 1001 |
| 10 | A | 1010 |
| 11 | B | 1011 |
| 12 | C | 1100 |
| 13 | D | 1101 |
| 14 | E | 1110 |
| 15 | F | 1111 |

A1416 = 1010 0001 01002

Give an example of High level language: Java

Where is the library defined? API Application Program Interface

What is the interpreter that runs the Bytecode? JVM

Does Java use a compiler or Interpreter? Both

How does a compiler work? Transforms the entire source code (high-level language) as a single unit into another code (such as Bytecode) or machine level language

How does an Interpreter work: executes programs line by line

Given examples of identifier names tell me if valid or not, if it is not valid correct it. What could it be used for?

num 🡪 valid int, double

Number 🡪 valid program name

2num 🡪 invalid num2 int, double

cont-loop 🡪 invalid contLoop or cont\_loop boolean

Declare and assign values to variables – read in a value

int num = input.nextInt();

String word = input.next();

Result of int division, % division

int y = 7/2;

double w = (double)7/2;

int remainder = 7%2;

Evaluate: &&, ||, !, ^

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **A && B** |
| T | T | T |
| T | F | F |
| F | T | F |
| F | F | F |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **A || B** |
| T | T | T |
| T | F | T |
| F | T | T |
| F | F | F |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **A ^ B** |
| T | T | F |
| T | F | T |
| F | T | T |
| F | F | F |

Write an if statement

Evaluate an if statement

Result of Math.ceil, write a Math.pow statement

Character methods

How to find the length of a String

charAt example

Write a .equals() statement or .equalIgnoreCase(), .contains()

Write and Evaluate while loops, for loops

Java is pass-by-value

Why use methods

Write a method header, overloaded method header

Write / match overloaded methods

Write methods & write the invoking statements

File IO: declare files, PrintWriter, Scanner

What is needed: throws IOException and import java.io.\*;

Declare & create arrays

Print out all the variables in an array

Sum up the variables in an array & find average

What is passed to a method when it is an array variable? The reference (the value that is stored in main memory)

Which is faster, linear or binary search? Why is the binary faster?

Write a program