

## Cs 125 Fall 2009 Exam 2 Practice

Before you start, please note: it is possible to get strong clues for answering some of the questions in the review by referring to other questions. For example, converting from code to a flow chart and vice versa. In general, you should not depend on both versions of a question showing up in the exam.

Also note: this study guide is not comprehensive. I strongly suggest reviewing: the practice problems worked on during class, homework assignments, material from the last exam & the self check questions in the text.

### Defining constant variables

Write out the statement to create a constant in a method for the standard atmosphere unit & set it to 101,325. Observe proper naming conventions & select an appropriate data type.

Write out the statement to create a constant in a class for the Faraday constant and set it equal to 96,485.3383. Observe proper naming conventions & select an appropriate data type.

Determine the output for the following operations – if the answer is text, enclose it in quotes:

7 % 4	=	125 + 101	=
4 % 7	=	"125" + 101	=
7 % -5	=	125 + "101"	=
0 % 3	=	"125" + "101"	=
3 % 0	=	9 % 3	=

Write out the following formulas as Java code:

$$q = 2 \cos \frac{1}{2}(a + b) \cos \frac{1}{2}(a - b)$$

$$posX = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

Write out the equation for the following Java code:

```
f = 2*Math.pow(x, 3) + 4*y*y + 2 / 3 * Math.sqrt(z)
```

```
g = Math.sin(Math.pow(x, y));
```

Given the following code, write the code that:

- uses the substring method to set g equal to the text "turn"
- sets e equal to the empty string
- prints the length of string g

```
String p = "returning";  
String g;  
String e;
```

```
// set g equal to the substring "turn"
```

```
// set e equal to the empty string
```

```
// print the length of g
```

Fill in some code to print out whether a number is above 10, below -3 or in between -3 & 10.

For example:

if the user enters 6, display: "6 between -3 & 10"

if the user enters -5, display: "-5 is below -3"

if the user enters 15, display: "15 is above 10"

```
// get input from user & save it in x
int x = in.nextInt();
```

```
// your code goes below here
```

Write out a flow chart for the code you wrote above:

Add in a single line of code to test if  $-10 < x < -3$  or if  $13 > x > 17$

```
// get input from user & save it in x
int x = in.nextInt();
```

```
// your code goes below here
```

```
// your code goes above here
```

```
{
    System.out.println("value is in the range -10 to -3 or 13 to 17");
}
```

Write the code to set the value of the variable **price** based on the variables **size** & **hasHoodie** (hasHoodie is true if the shirt has a hood, otherwise it is false). If the size is something invalid, don't bother setting the price, but print "error". Use the chart below to determine the prices.

	sizes		
hoodie	"small"	"med"	"large"
no	10.00	15.00	20.00
yes	10.00	16.00	25.00

```
String size;  
boolean hasHoodie;  
double price;  
  
// code to set the values of size & hasHoodie  
...  
// your code goes below here
```

Examine the following code:

```
int max = 4;
int m = max;
for(int a=1; a<=max; a++)
{
    for(int b=0; b<m; b++)
        System.out.print("*");
    for(int b=0; b<a; b++)
        System.out.print("#");
    System.out.println("");
    m--;
}
```

What is the final output displayed by the code:

Diagram the code using a flow chart:

Examine the following flow chart & convert into a static method called `alternatingSeries` which takes an `int` parameter `max` and returns an `double` as an answer. Be sure to include documentation comments for the method.

