10/02/15 APCS – Monta Vista High School Practice Test Name_____

1. Find the result of the operation in a through e. If it produces an error, write ERROR.

a) 12 % 5 != 2.0 _____

b) (! 65 > 4 * 15 || false) _____

c) (8 * 4 % 16 != 5) && (44 / 11 + 5 >= 31) _____

d) (int) 7.4 < 7.4 || ! (5.6 / 7.8 > 1 && true) _____

e) (5 + - 2 * 4 + 6.5) + 24 / 6 % 2 _____

2. Trace the loops. Fill in the chart for passes through the loops. Be careful!

```
int ab = 15;
for (int cd = 120; cd > 0; cd -= ab)
        System.out.print("loop ");
        System.out.print("next ");
```

Loop	ab	cd	Output
before loop			
after 1 loop			
after 2 loops			
after 3 loops			
after 4 loops			
after 5 loops			

```
char dee = ‘d’;
while (dee != ‘D’)
{
        dee -= 8;
        System.out.print(dee);
}
```

Loop	dee	Output
before loop		
after 1 loop		
after 2 loops		
after 3 loops		
after 4 loops		

3. Given a String, return a version without the first 2 chars. Except keep the first char if it is 'a' and keep the second char if it is 'b'. The String may be any length.

withoutFirstTwo ("Hello") → "llo"
withoutFirstTwo ("java") → "va"
withoutFirstTwo ("away") → "aay"
withoutFirstTwo ("abstract") → " abstract "
withoutFirstTwo ("") → ""
withoutFirstTwo ("ob") → "b"

public String withoutFirstTwo(String word)

4. Given 2 int values greater than 0, return whichever value is nearest to 21 without going over. Return 0 if they both go over.

twentyone(19, 21) → 21
twentyone (21, 19) → 21

twentyone(9, 2) → 9
twentyone (23, 22) → 0

twentyone(4, 22) → 4
twentyone (22, 21) → 21

public int twentyone(int x, int y)

5. Given an array of ints length 3, figure out which is larger between the first and last elements in the array, and set all the other elements to be that value. Return the changed array.

maxArray({1, 2, 3}) → {3, 3, 3}
maxArray ({11, 5, 9}) → {11, 11, 11}
maxArray ({2, 11, 3}) → {3, 3, 3}

maxArray ({5, 2, 5}) → {5, 5, 5}
maxArray ({1, 30, 45}) → {45, 45, 45}
maxArray ({1, 22, 1}) → {1, 1, 1}

public int [] maxArray(int [] a)

6. Consider the following algorithm. This routine should print the numbers 1 to 110 in rows of 11 at a time.
For each number divisible by 3 it replaces the number with "Itty", for each number divisible by 5 it replaces the number with "Bitty", and for each number divisible by 7 it replaces the number with "Ditty". If a number is divisible by 3 and 5 then it prints "IttyBitty", and so forth.

Partial Output:

1 2 Itty 4 Bitty Itty Ditty 8 Itty Bitty 11
Itty 13 Ditty IttyBitty 16 17 Itty 19 Bitty IttyDitty 22
...

Create a detailed FLOW CHART for this algorithm.