Practical IB Computer Science Test #2—Methods

Name: _____ Date: _____

Complete a series of methods in the Java class *PracticalTestQ2B.java*. Method signatures are given in the code to guide you. The only line you have to add to the main method is the one to follow instruction #1. There are comments to show you where to place this line, as well as the rest of the code you have to write.

Notes:

- You may need your notes, code and answers from the worksheets, from chapters 1 to 8 inclusive.
- You will need the ***gcd*** method included in the code (`static int gcd(int x, int y)`, which returns the greatest common divisor of *x* and *y*.
- *Use the methods you wrote in previous instructions to solve the next ones.*

Work through the test from the beginning. Your program should build and grow –do not start a new program for each point. During this test, you may use any resources that you have created or provided to you by the teacher, but do **not** use Internet.

Instructions	***Program Display/Details***
1. *Output* your name on the screen.	`(Your name)`
2. Complete the ***isEven*** method.	The method will return ***true*** if a number is even, ***false*** otherwise.
3. Complete the ***isPositive*** method.	The method will return ***true*** if a number is positive or zero, ***false*** if it is negative.
4. Complete the ***abs*** method.	The method will return the absolute value of an integer.
5. Complete the ***isFactor*** method.	The method will return ***true*** if ***x*** is a factor of ***n***, ***false*** if it is not.
6. Complete the ***listFactors*** method.	The void method will print out all the factors of an integer, from 1 up to and including the number/argument.
7. Complete the ***countFactors*** method.	The method will return the count of factors (from 1 to the number inclusive) of an integer.
8. Complete the ***isPrime*** method.	The method will return ***true*** if a number is prime, ***false*** otherwise.
9. Complete the ***listPrimeFactors*** method.	The void method will print out all the ***prime*** factors of an integer.
10. Complete the ***lcm*** (least common multiple) method. This method requires the GCD already included in the code.	The method will return the LCM of two integers. You may use the formula: $$lcm(a,b) = \frac{\lvert a \times b \rvert}{\gcd(a,b)}$$ Or, the LCM of ***a*** and ***b*** is the absolute value of ***a*** times ***b***, divided by the GCD of ***a*** and ***b***.

Submit your Java source code file to the corresponding online homework entry before the end of the period. Good luck!

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This will be a good practice for next week's practical test, and next quarter (Q3) as well.

Note:

- **This test does not require to use *double* data types, which our actual test will.**
- **This test was designed to be written using *methods*, which will not be required in our actual test.**

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