Homework 3

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7.1)

// Use Euclid's algorithm to calculate the Greatest Common Divisor of two numbers.

private long GCD( long a, long b )

{

// First, ensure that a and b are positive numbers

a = Math.abs( a );

b = Math.abs( b );

//Next, use repeated Euclidean division until we find a zero-remainder.

//The last non-zero remainder is the GCD.

for( ; ; )

{

long remainder = a % b;

If ( remainder == 0 ) return b;

a = b;

b = remainder;

};

}

7.2) Bad code comments come about when you are either making comments for the sake of having them or if you are making them after the code has been written already. If a programmer wants to make good comments, they should write them before writing the code.

7.4) I would add an assert statement that would throw an exception when the input provided is bad. I would also delete the code the takes the absolute value of a and b since the assert statement would make this code useless. This makes the GCD function offensive rather than defensive because it would throw a tantrum rather than fix the mistake. Here is the code:

private long GCD( long a, long b )

{

// First, ensure that a and b are positive numbers

Debug.Assert(a > 0 && b > 0);

//Next, use repeated Euclidean division until we find a zero-remainder.

//The last non-zero remainder is the GCD.

for( ; ; )

{

long remainder = a % b;

If ( remainder == 0 ) return b;

a = b;

b = remainder;

};

}

7.5) No,