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Homework5_2

a. Write a C++ program to compute

Code :

```
#include<iostream>
#include<cmath>
using namespace std;

int main()
{
	int i;
	cout << "1" << endl;
	for (i=2; i <= 100; i++)
	{
		int j = 2;
		for (; j <= i; j++)
		{
			if (i%j == 0)
				break;
		}
		if (j>=sqrt(i)) //Reduced number of comparisons
		{
			cout << i << endl;
		}
	}
	cout << "\n "<< endl;
}
//This code is created by Hanlin Cai
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```

b. If n is greater than sqrt(number), the number is not equally divisible by n. Why?

Answer:

If a number is a factor of N, then the natural number divided by N must also be a factor of N. If N is written as a product of two numbers, the two multipliers must be equal, or one is larger than the other, and the smaller must be larger than the principal square root.

So if [1, $\sqrt{N}$] has factors of N then there must be factors of N in [$\sqrt{N}$, N]. And if [1, $\sqrt{N}$] has no factors of N then there must be no factors of N in [$\sqrt{N}$, N], so $\sqrt{N}$ is enough.