

```
public class problem5_smallestMultiple {
    public static void main(String[] args) {
        long multiple = 1L;
        for (int i = 1; i <= 20; i++) {
            // keep finding the LCM of 2 consecutive terms so that we account
            // for common factors
            multiple = findLCM(multiple, i);
        }

        System.out.println(multiple);
    }

    public static long findGCF(long a, long b) {
        // keep modding b to reduce it by common factors between a and b
        // it is also mathematically true that the GCF of a and b is the same
        // the GCF between (a % b) and b so we use that
        while (b != 0) {
            long num = b;
            b = a % b;
            a = num;
        }
        return a;
    }

    public static long findLCM(long c, long d) {
        // we use the property that the product of 2 numbers is the product
        // of the LCM and GCF
        return (c * d) / (findGCF(c, d));
    }
}
```