```
public class HangmanStats {
	public void numberOfWords(HangmanFileLoader loader, int n){

		HashSet<String> set = new HashSet<String>();
		for(int k=0; k < 1000000; k += 1) {
			set.add(loader.getRandomWord(n));
		}
		System.out.println("number of "+ n + " letter words = "+
set.size());

	}

	public void statisticalQuestion(HangmanFileLoader loader){
		HashSet<String> set = new HashSet<String>();
		for(int k=0; k < 1000000; k += 1) {
			set.add(loader.getRandomWord(5));
		}
		int count = 0;
		Iterator<String> itr = set.iterator();
		 while(itr.hasNext()) {
		    String element = itr.next();
		    if(element.charAt(0) == 'a' && element.charAt(4) == 'a')
{count+=1;System.out.println(element);}

	}
		 System.out.println(count);
	}
	public static void main(String[] args) {
		HangmanStats stats = new HangmanStats();
		HangmanFileLoader loader = new HangmanFileLoader();
		loader.readFile("lowerwords.txt");
		for(int i = 4;i<21;i++){
		stats.numberOfWords(loader,i);}
		stats.statisticalQuestion(loader);
}}
```

For 1A, I altered the for-loop by making the upper limit 1000000, which seemed to find the actual # of words of each length in question. In the “main” I looped through numberOfWords 17 times (initial i of 4 and final i of 20). I also altered what is printed so that the number of words being printed corresponded with the int argument in the function.

```
public void numberOfWords(HangmanFileLoader loader, int n){

            HashSet<String> set = new HashSet<String>();
            for(int k=0; k < 1000000; k += 1) {
                  set.add(loader.getRandomWord(n));
            }
            System.out.println("number of "+ n + " letter words = "+
set.size());

      }
```

Here is the output that I get when I run numberOfRoads:

```
number of 4 letter words = 2235
number of 5 letter words = 4170
number of 6 letter words = 6166
number of 7 letter words = 7359
number of 8 letter words = 7070
number of 9 letter words = 6079
number of 10 letter words = 4591
number of 11 letter words = 3069
number of 12 letter words = 1880
number of 13 letter words = 1137
number of 14 letter words = 545
number of 15 letter words = 278
number of 16 letter words = 103
number of 17 letter words = 57
number of 18 letter words = 23
number of 19 letter words = 3
number of 20 letter words = 3
```

1B Question: How many five letter words start and end with the letter ‘a’?

I copied the HashSet and for-loop code from numberOfWords to create a set of 5 letter words. I created an iterator and a counter and then used a while loop to iterate over the set. If the characters at index 0 (first letter) and index 4 (last letter) were ‘a’, the counter was increased by 1 and the word printed. The final answer I received was 12. Here are the words:

anita
alcoa
arena
appia
aloha
ababa
aroma
amiga
accra
aorta
alpha
aruba

```
public void statisticalQuestion(HangmanFileLoader loader){
           HashSet<String> set = new HashSet<String>();
           for(int k=0; k < 1000000; k += 1) {
                set.add(loader.getRandomWord(5));
           }
           int count = 0;
           Iterator<String> itr = set.iterator();
            while(itr.hasNext()) {
               String element = itr.next();
               if(element.charAt(0) == 'a' && element.charAt(4) == 'a')
{count+=1;System.out.println(element);}

     }
            System.out.println(count);
```