1. Draw an object and reference diagram showing the data structure that would result after executing all of the following statements.

```java
class ListItem {
    public int number;
    public ListItem next;
    public ListItem(int number, ListItem next) {
        this.number = number;
        this.next = next;
    }
    public String toString() {
        if (this.next == null) return number;
        else return number + " " + next;
    }
}
```

```java
ListItem a = new ListItem(6, new ListItem(8, null));
ListItem b = new ListItem(2, a);
System.out.println("a = " + a);
System.out.println("b = " + b);
b.next = new ListItem(4, a.next);
a = a.next;
System.out.println("a = " + a);
System.out.println("b = " + b);
```

![Object and Reference Diagram]

2. What output would be printed by executing the code fragment from question 1?

3. Assuming that memory is allocated starting at memory address 200, complete the table at the right to show how the structure created by the code in question 1 would be represented in memory. **Put an X by the addresses of any memory cells that contain garbage objects.**

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