1. Consider the following code

```java
public abstract class Animal {
    public abstract boolean isExtinct();
    public String toString() { return "An animal"; }
}

public class Dinosaur extends Animal {
    public static final Dinosaur BARNEY = new Dinosaur();
    public boolean isExtinct() {
        return true;
    }
}
```

a. Which of the following declarations are valid? Check all that apply.
   i. Animal dino = new Dinosaur();
   ii. Dinosaur dino = new Dinosaur();
   iii. Animal anne = new Animal();
   iv. Dinosaur anne = new Animal();

b. Given a Dinosaur dave, what do the following commands return when typed in the Dr. Java interactions pane?
   i. dave.toString();
   ii. dave.isExtinct();
   iii. dave;

c. How would you refer to BARNEY in the following?

```
_________________________.toString()
```

2. Suppose we have a linked list of books in a library and the books are defined as follows:

```java
public class BookElement {
    private String bookDetails = ""
    private BookElement next = null;

    public String getDetails() {return this.bookDetails;}
    public BookElement getNext() {return this.next;}
    public void setDetails(String details) {this.bookDetails = details;}
    public void setNext(BookElement be) {this.next = be;}
}
```
Write a method `length()` that returns the length of the list that starts at this by filling in the code template below.

```java
public int length() {
    // Hint: Initialize number here. Also, you need a current element, starting at this.

    // Hint: Then comes the standard while loop for the traversal
    while (_________________________________________) {
        // Hint: do something inside the loop that helps you count.

        // Hint: do something so that the loop doesn't repeat forever.
    }

    return number
}
```

3. A model is not the same as reality, but always simplifies some aspects of reality. JMusic is a powerful way to model music computationally, but it is still a model. Give ONE way in which JMusic seems to simplify music.