Loose Ends: A few random items to help on the AP Exam.

Preconditions/Postconditions:

Preconditions: A condition that must be true before a method executes to execute that it can perform a task.

Postcondition: A condition that the method guarentees will be true after it finishes executing, as long as the preconditions were true before it was called.

In general on the AP Exam when a Precondition is provided in a problem, you can assume that it is always true for the problem. Same for Postconditions. Keep in mind that if a Precondition is not true, then Java will may Throw Exceptions, for example:

```
java.lang.ArithmeticException: / by zero
```

The For-Each Loop (the AP Exam loves to use these in the MC section, makes code shorter)

Syntax: [works for arrays and ArrayLists (and other list structures)]

```
for ( <type> <name> : <array or ArrayList> ) {
     <statement>;
     <statement>;
     ...
     <statement>;
}
```

Array Example of a For-Each Loop:

```
Integer[] these = {1, 2, 3, 5, 7, 11, 13, 17};
int total = 0;

for (int x: these){
   total += x; // updates a cumulative sum
   System.out.print(x + " ");
}
System.out.println(" Total is: " + total);
```

Output:

```
1 2 3 5 7 11 13 17  Total is: 59
```

Same As the standard for loop:

```
for (int i = 0; i < these.length; i++){
   total += these[i]; // updates a cummulative sum
   System.out.print(these[i] + " ");
}
System.out.println(" Total is: " + total);
```