Lesson 36: Introduction to Recursion
Introduction to Recursion

Recursion

A method that repeats by calling itself
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Example

```java
public static void printDecimal(int n) {
    if (n >= 10)
        printDecimal(n/10);
    System.out.println(n % 10);
}
```
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Recursive methods have:

A call to itself - the **recursion**.

A **base case** to stop the recursion. This is usually an if statement.
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The Stack

The **stack** is the location in memory where the interrupted method calls are stored.

Once the base case is hit the program moves through the **stack** and carries out all the commands.
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Example:

```java
public static void recur1 (int n){
    if (n > 0)
        recur1 (n - 2);
    System.out.print (n + " ");
}
```

What is output by: `recur1 (6);`
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Recursion Fun Facts

Any recursive method can be rewritten with a loop. The loop might be *really* long.

Used to simplify coding when the algorithm is repeated on a smaller set of data.
Recursion on the AP Exam

You will see a few recursive methods on the multiple choice section.

You will need to recognize recursion, but you will not have to write code for any recursive methods.