Computer Science AP
Recursion Problems

Recursion is a short topic that we want to introduce students to in this course. The AP Exam doesn't require you to write recursive solutions, only read them. But that doesn't mean you shouldn't be able to write a few simple recursive problems. Try your hand at these (they should all be recursive solutions!):

[01 – Questions]
What determines whether a method is recursive or not?
When will a recursive method go on forever and how does this related to 'stack overflow'?
What is meant by the 'base case' when talking about recursive methods?

[02 – Count Up]
Write a method that would count up from 0 to the number the user passes in as an argument. For example,   countUp(8) would print 0 1 2 3 4 5 6 7 8 .

[03 – Powers]
Write a method that would return the solution of the number '2' to the power of another number. For example,   powers(3) would return 8, powers(4) would return 16, powers(5) would return 32. Assume the parameter passed in an integer that is 1 or larger.

[04 – Factorial]
Write a method that would return the factorial of the parameter. For example, factorial(3) would return (3*2*1) = 6, factorial(5) would return (5*4*3*2*1) = 120.

[05 – Lucky Stars] * Optional *
This method draws out the following pattern based on the value of the argument.
luckystars(3) would output
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* *
*
*
* *
* * *

luckystars(5) would output
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