

1. (6 points) The following function “foo” is defined as shown on the left. What will matlab return when the commands on the right are run?

<pre>function a = foo(b) if b <= 2 a = 2; else a = foo(b-3) + foo(b-2); end</pre>	<pre>>>foo(3) ans = 4 >>foo(9) ans = 18</pre>
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2. (6 points) A program “foo” is written as follows. What recursive function does it implement? Write down this recursive function and its boundary condition.

<pre>function a = foo(b) if b <= 1 a = 1; else a = foo(b-1)+foo(-2); end</pre>	<p>It's fibonacci(n+1)</p> <p>foo(b) = 1, b <= 1 foo(b-1)+foo(b-2), otherwise</p>
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3. (6 points) The following is a **correct** program for removing consecutive duplicate letters from a string (eg., from “aaabbc” to “abc”). However, the program has some redundant or unnecessary part(s). point it (or them) out and briefly explain the reason.

```
function y = Noduplicates(A)
if (length(A) < 2)
y = A;
elseif length(A) == 2
    if A(1) == A(2)
        y = A(1);
    else
        y = A;
    end
else
    if A(1) == A(2)
        y = Noduplicates(A(2:end));
    else
        y = [A(1) Noduplicates(A(2:end))];
    end
end
```

The part in bold is unnecessary because it can be handled by the else code block following it.