**Recursive Tracing**

1. Dry run the following algorithm with the initial call PrintSequence(5). Clearly show the value of the parameter, n for each call and the final output.

Procedure PrintSequence(n)

 Output(n)

 n ← n - 1

 If n > 1 Then

 PrintSequence(n)

 EndIf

EndProcedure

|  |  |
| --- | --- |
| n | Output |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Final Output:

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|  |  |
| --- | --- |
| n | Output |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Final Output:

1. Dry run the following recursive function with the initial call DoSomething(5, 2)

Function DoSomething(x, y)

 If x = 1 Then

 Return y

 Else

 Return DoSomething(x - 1, x + y)

 EndIf

EndFunction

|  |  |  |
| --- | --- | --- |
| x | y | Return value |
|  |  |  |
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 Final answer:

1. When the following function is called with DoSomething(18), the value 4 is returned.

Dry run the algorithm to work out what will be returned by DoSomething(100)

Function DoSomething(n)

 If n = 1 Then

 Return 0

 Else

 Return 1 + DoSomething(n DIV 2)

 EndIf

EndFunction

|  |  |
| --- | --- |
| n | Return value |
|  |  |
|  |  |
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Final answer: